

Bulletin 2254 Worklife Expectancy Tables and Tort Gender Inequality

Lawrence M. Spizman

Abstract

Some state statutes or pattern jury instructions suggest using Bulletin 2254 for determining work life expectancy. Because of structural changes in the labor market (particularly among women) since 1979, the use of Bulletin 2254 tables results in work life totals that do not reflect the current labor market. Using tables from Bulletin 2254 is particularly damaging to women in the calculation of their lost earnings. This article discusses the reasons a Damages Expert (DE) should avoid using Bulletin 2254 and use the more current worklife expectancy tables created by private economists to provide the trier of fact with a more accurate estimate of economic damages.

Introduction

Bulletin 2254, officially named “Worklife Estimates: Effects of Race and Education,” by Shirley Smith (1986), used 1979-80 data. Bulletin 2254 tables used the increment-decrement method and, for the first time, included lifetime labor force participation rates by education, gender and race.¹ The U.S. Department of Labor no longer publishes these tables but continues to provide the data on which such tables are based. A number of economists have taken over the task of updating the tables to incorporate the most current data (Ciecka, Thomas and Goldman (2000), Skoog and Ciecka (2001), Krueger (2004), Krueger, Skoog, and Ciecka (2006), Millimet, Nieswiadomy, Ryu, Slottie (2004) and Skoog, Ciecka and Krueger (2011)). See Krueger (2004) for an extensive history of Worklife tables. This

Lawrence M. Spizman is a Professor of Economics, State University of New York (SUNY) at Oswego, Department of Economics, 7060 State Route 104, Oswego, NY 13126-3501. Tel: 315-343-7631 Fax: 315-343-8006

larry.spizman@oswego.edu

The author wishes to thank anonymous referees for helpful comments on and suggestions for an earlier draft of this paper. This paper’s conclusions and any errors in it are the sole responsibility of the author.

¹ This article does not address whether the Life-Participation-Employment (LPE) method (Brookshire and Cobb, 1983) incorporates the probability of being employed into the probability of living and participating in the labor force. To read about that debate, see-Ireland (2009).

paper will use the Skoog, Ciecka and Krueger (2011) tables for comparison purposes to demonstrate why Bulletin 2254 should not be relied upon.

Bulletin 2254 is an extremely important historical document that introduced new methods of estimating worklife expectancy. The increment-decrement method is the standard methodology used by current authors in developing updated tables. Labor market trends occurring after the publication of Bulletin 2254 are not accounted for and the newer tables capture the effect of these trends on worklife expectancy.

Because of structural labor market changes since 1979/1980, it seems unlikely that damages experts would choose to use Bulletin 2254 tables voluntarily. According to the Brookshire, Luthy and Slesnick's (2009) survey of forensic economists, only 5.8 percent² use Bulletin 2254 tables, down from 71.6 percent in the 1991 survey. For those still using Bulletin 2254, it is not known if their use is mandated by statute or they choose to use these tables voluntarily.

Arguably, females have experienced the greatest structural change in the labor market. Coricione and Thornton (1991) observe that standard worklife tables underestimate female worklife expectancy. Foster and Skoog (2004) state that "both survival rates and female labor force participation have increased over time, so that it is important to use the most recent valid tables for them." Ireland (2009) discusses how increased education levels increase a person's worklife expectancy and, by not taking that into consideration, the projected worklife will be understated.

If state law mandates using Bulletin 2254, the Damages Expert (DE) of course must do so. However, the DE can point out the outdated nature of the data on which the tables are based and that the tables seriously understate the work life expectancy of women. The real issue for a DE is whether Bulletin 2254 should be the sole source used when state statutes suggest using it.

States That May Use Bulletin 2254

The statutes of some states (including New York and Rhode Island) allow for Bulletin 2254 to be used. New York has many legal peculiarities that often baffle DEs. Spizman and Dunne (2000) have previously discussed many of the major peculiarities of New York. New York's Pattern Jury Instructions (PJI) Appendix B includes tables from Bulletin 2254 for use in determining worklife expectancy. New York Pattern Jury Instructions Appendix A also provides life expectancy data that are periodically updated but always lag behind the most current life

²It is assumed that the standard worklife tables they refer to are the 1986 Bulletin 2254 tables.

tables.³ Part of a DE's job is to make sure to use correct and current data sources, subject to the legal constraints of the jurisdiction where the case is held.

Of the 5.8 percent of the DEs surveyed in the Brookshire, Luthy and Slesnick (2009) survey reportedly still using Bulletin 2254, how many do so because the statute mandates them to? Of this group, how many are from New York or Rhode Island and rely on the Pattern Jury Instructions as justification for using Bulletin 2254? Since New York is one of the largest states, one can conjecture that some or most of those responding in the Brookshire et al. survey reportedly using Bulletin 2254 may be from New York or Rhode Island, or work on cases in those states.

Worklife Expectancy

While some worklife projections based on gender, age, and educational levels may differ minimally if calculated from either current tables (current tables refers to tables by Skoog, Ciecka, and Krueger, 2011) or the Bulletin 2254 tables, it is critical to remain consistent in choosing which tables to use and recognize that changes in the labor market conditions since 1979 have made Bulletin 2254 invalid.

Some DEs in New York will claim they must rely on the PJI which are the Bulletin 2254 tables even though they are outdated. However, it is not required that only Bulletin 2254 tables be used. PJI 2012, 2:290 Vol. 1B p. 896-897 states:

Although as official compilations, the Department of Labor tables may be judicially noticed, the preparation of any such tables involves judgment in the gathering of the underlying statistics that may affect the reliability of the table in relation to the fact situation before the court. Expert testimony concerning the reliability of the Department of Labor table, may, therefore be offered, and with respect to a privately prepared table, expert testimony would be required to allow the table to be used as a basis for an opinion.

This statement allows a damages expert in New York to question the reliability of Bulletin 2254, recognizing that Bulletin 2254 uses obsolete data, and more importantly, that more current tables are available.

If the New York PJI for worklife were updated, then instead of using Bulletin 2254 (last updated in 1986), DEs would use a more current table such as Skoog,

³ Appendix A in the 2012 PJI used U.S. Life Tables from 1999 Vol. 47, No 28 (December 13, 1999). Currently tables from Vol. 59, No. 9, (September 28, 2011) are available for 2007.

Ciecka and Krueger (2011). The Final Report of the Special Master for the September 11 Victim Compensation Fund of 2001 relied upon the Ciecka, Donley and Goldman (2000) tables (at the time, the most current). The reason the Special Master used these tables rather than Bulletin 2254 is because Bulletin 2254's data are outdated (Link to the Final Report: http://www.usdoj.gov/final_report.pdf See page 33 and footnote 109).

The current Victim Compensation Fund of August 31, 2011 changed the work-life tables to reflect what was thought to be the most current tables: From www.vcf.gov/faq.html September 11th Victim Compensation fund Frequently Asked Questions 6.18, 4

Determine a measure of the Decedent's or injured Claimant's expected remaining years of workforce participation using the tabulated work-life expectancies for the Decedent's or injured Claimant's age at the time of death or at the time the Decedent or injured Claimant was unable to work or had to reduce work as a result of eligible conditions contained in the publication, "Worklife in a Markov Model with Full-time and Part-time Activity" by Kurt V. Krueger, Gary R. Skoog, and James E. Ciecka in the *Journal of Forensic Economics*, 19 (1) 2006, pp. 61-82. These are the most recent and generally accepted tables of work-life expectancy regarding the general population available.

If the latest iteration of the Skoog, Ciecka, and Krueger (2011) tables were available to the VCF then it appears they would have specified their use.

State of Rhode Island General Laws § 9-19-38 states the following:

§ 9-19-38 Proof of life or worklife expectancy. – (a) In any proceeding commenced in any court, commission, or agency, when the life or worklife expectancy of a person shall be at issue or when it is necessary to establish the expectancy of continued life or worklife expectancy of any person from any period of the person's life, whether he or she is living at the time or not, the most recent issue of The United States Abridged Life Tables (United States Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics) or Tables of Worklife Expectancies as published in "Worklife Estimates: Effects of Race and Education" (United States Department of Labor, Bureau of Labor Statistics) shall be admissible in evidence as competent evidence of such matter. The admissibility of evidence provided for in this section shall not be deemed to render inadmissible evidence as to the health, constitution, habits, or occupation of the person or any other evidence otherwise admissible under the laws of this state.

Using older tables such as Bulletin 2254 that do not capture structural changes in the labor force may either increase or reduce additional years of worklife.

Labor Force Participation Rates Effect on Worklife Tables

Labor force participation rates (LFPR) best reflect the available supply of labor (see Aaronson, Fallick, Figura, Pingle, and Wascher, 2006). Toossi (2009) and Aaronson et al. (2006) discuss factors that caused the labor force participation rates to rise from 60 percent in the 1960s to 67 percent in the late 1990s, and then start to decline thereafter. Toossi (2009) discusses how three demographic trends in the labor force (its slowing growth, its aging, and the changes in its ethnic and racial composition) alter the workforce and hence labor force participation rates. While these factors explain the recent decline of the LFPR, Toossi also talks about other factors, including the increase in LFPR of 55-year-olds since 1990 and the increase in Hispanic and Asian populations that will cause an increase in the overall LFPR. Whether the factors causing an increase in LFPR are enough to countervail those factors exerting downward pressure on LFPR will be determined by future events.

Aaronson, et al. (2006) explain how both cyclical and structural factors in the economy contribute to changes in the labor force participation rate. They suggest that the business cycle caused the increase in the LFPR in the late 1990s and then caused the decline during the recession in 2001. They also discuss how the aging baby boom cohort and other demographic changes affect the aggregate participation rates. They claim that the aging baby boom is an “important wild card in the years ahead.” They discuss how older workers who delay retirement or re-enter the labor market cause LFPR to increase. Gendell (2008) discusses how workers over 60 have reversed the decline of labor force participation rates in this age group for both men and women. In addition to the LFPR of males over 60 rising, this age cohort has been working full time. The Pew Research Center (2009) also states how older workers are staying in the labor market longer while young workers are staying out longer.

Toossi (2009) discusses how male LFPR has been decreasing since the 1970s and are projected to continue declining, albeit more slowly. Female LFPR has steadily increased, peaking in 1999. Toossi and Aaronson conclude that the decline in LFPR since 2001 is due to the business cycle, though structural factors may explain the increase in LFPR in 2005.

Hotchkiss (2009) discusses how the decline in aggregate LFPR since 2000 can be explained more through changing population shares rather than the behavior of youth and working women. She then discusses how changes in productivity will be major factors in determining LFPR in the future.

Hoffman (2009) reviews the changing labor force participation for all women. He presents data from the Current Population Survey between 1984 and 2004

showing the rising LFPR of women aged 25-44 with children. That is, the cohort in 2004 was more likely to work than the same cohort in 1984. This was true for both married and unmarried women with children. However, the LFPR of married women with children started to decline in 1994 while the LFPR of unmarried women continued to rise. Between 1993 and 2000, the LFPR for single women with children under 5 years of age increased 14 percentage points while it increased for all single mothers by 9 percentage points.

Changes in Labor Force Participation Rates between male and females reflect demographic, social, and economic changes in the labor force. Because these changes occurred after the release of Bulletin 2254, they are not accounted for in its worklife tables.

Table 1 shows how the Labor Force Participation Rates have changed since 1975. In particular it shows how the LFPR of females has increased. It also shows how LFPR between males and females have converged over the years. This convergence in the participation rate gap has occurred since 1979/80, the years used in Bulletin 2254.

Table 1			
Male and Female Labor Force Participation Rates, With Gap in Years			
Year	Male	Female	Participation rate gap
1975	77.90	46.30	31.60
1976	77.50	47.30	30.20
1977	77.70	48.40	29.30
1978	77.90	50.00	27.90
1979	77.80	50.90	26.90
1980	77.40	51.50	25.90
1981	77.00	52.10	24.90
1982	76.60	52.60	24.00
1983	76.40	52.90	23.50
1984	76.40	53.60	22.80
1985	76.30	54.50	21.80
1986	76.30	55.30	21.00
1987	76.20	56.00	20.20
1988	76.20	56.60	19.60
1989	76.40	57.40	19.00
1990	76.40	57.50	18.90
1991	75.80	57.40	18.40
1992	75.80	57.80	18.00
1993	75.40	57.90	17.50
1994	75.10	58.80	16.30
1995	75.00	58.90	16.10
1996	74.90	59.30	15.60
1997	75.00	59.80	15.20
1998	74.90	59.80	15.10
1999	74.70	60.00	14.70
2000	74.80	59.90	14.90
2001	74.40	59.80	14.60
2002	74.10	59.60	14.50
2003	73.50	59.50	14.00
2004	73.30	59.20	14.10
2005	73.30	59.30	14.00
2006	73.50	59.40	14.10
2007	73.20	59.30	13.90
2008	73.00	59.50	13.50
2009	72.00	59.20	12.80
2010	71.20	58.60	12.60

Labor Force Statistics from the Current Population
Survey

<http://data.bls.gov/pdq/SurveyOutputServlet>

Table 2 shows the difference between participation rates for males and females comparing having a college degree with having a high school degree.

Table 2						
Labor Force Participation Rates College and High School: Difference in Years						
Year	Labor Force Participation Rate Bachelor's Degree and Higher 25 Years and Older			Labor Force Participation Rate High School Graduates no College, 25 Years and Older		
	Male	Female	Difference	Male	Female	Difference
1992	86.90	74.75	12.15	78.35	56.75	21.60
1993	86.45	74.95	11.50	77.30	56.13	21.18
1994	86.23	75.33	10.90	76.53	56.55	19.98
1995	85.83	75.38	10.45	76.55	56.38	20.18
1996	85.10	75.35	9.75	76.58	56.58	20.00
1997	85.03	75.48	9.55	76.55	56.78	19.78
1998	85.00	74.98	10.03	76.15	55.90	20.25
1999	84.60	74.78	9.83	75.65	55.88	19.78
2000	84.43	74.00	10.43	75.08	55.45	19.63
2001	84.30	73.15	11.15	74.50	55.43	19.08
2002	83.95	73.00	10.95	74.55	55.28	19.28
2003	83.18	73.08	10.10	73.98	54.98	19.00
2004	82.83	72.80	10.03	73.53	54.15	19.38
2005	82.90	72.88	10.03	73.63	53.85	19.78
2006	82.78	73.08	9.70	73.35	53.85	19.50
2007	82.90	72.85	10.05	73.15	53.40	19.75
2008	82.38	73.38	9.00	72.90	53.13	19.78
2009	81.83	73.28	8.55	72.10	52.78	19.33
2010	81.33	72.38	8.95	71.38	52.38	19.00

Labor Force Statistics from the Current Population Survey
<http://data.bls.gov/pdq/querytool.jsp?survey=ln>

While the male vs. female participation rate difference has been somewhat consistent for those with only a high school degree (the difference in 2010 is 88% of that in 1992), it has narrowed more for those with a college degree. In 2010 the difference in labor force participation rates between men and women is 8.95 years (73.7% of the difference in 1992). This may also explain why, during the current recession, job losses for females have been less than for males. Because more women are in college than men, women have been shielded from the full brunt of job losses (McQueen, 2010).

Women have also been getting more degrees than men. Table 3 shows the absolute number of degrees by different levels of education. Since 1975, the overall percentages of all degrees have declined for men significantly. This human capital trend is not accounted for in the worklife tables of Bulletin 2254. Women have obtained more degrees in 2008 than men up to the master's level and have reached parity with men in professional and doctoral degrees.

Year	Percent of All Degrees Held by Males	Associates Degrees		Bachelor's Degrees		Masters' Degrees		Professional Degrees		Doctoral Degrees	
		Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
1975	56.0	191	169	505	418	162	131	49	7	27	7
1976	55.7	210	181	505	421	167	145	53	10	26	8
1977	54.7	211	196	496	424	168	149	52	12	25	8
1978	53.3	205	208	487	434	161	150	52	14	24	8
1979	52.1	192	211	477	444	153	148	53	16	24	9
1980	51.1	184	217	474	456	151	147	53	17	23	10
1981	50.3	189	228	470	465	147	149	53	19	23	10
1982	49.8	197	238	473	480	146	150	52	20	22	10
1983	49.6	204	246	479	490	145	145	51	22	22	11
1984	49.6	203	250	482	492	144	141	51	23	22	11
1985	49.3	203	252	483	497	143	143	50	25	22	11
1986	49.0	196	250	486	502	144	145	49	25	22	12
1987	48.4	191	245	481	510	141	148	47	25	22	12
1988	48.0	190	245	477	518	145	154	45	25	23	12
1989	47.3	186	250	483	535	149	161	45	26	23	13
1990	46.6	191	264	492	560	154	171	44	27	24	14
1991	45.8	199	283	504	590	156	181	44	28	25	15
1992	45.6	207	297	521	616	162	191	45	29	26	15
1993	45.5	212	303	533	632	169	200	45	30	26	16
1994	45.1	215	315	532	637	176	211	45	31	27	17
1995	44.9	218	321	526	634	179	219	45	31	27	18
1996	44.2	220	336	522	642	179	227	45	32	27	18
1997	43.6	224	347	521	652	181	238	46	33	27	19
1998	43.2	218	341	520	664	184	246	45	34	27	19
1999	42.7	218	342	519	682	186	254	44	34	25	19
2000	42.6	225	340	530	708	192	265	44	36	25	20
2001	42.4	232	347	532	712	194	274	43	37	25	20
2002	42.2	238	357	550	742	199	283	43	38	24	20
2003	42.1	253	380	573	775	211	301	42	39	24	22
2004	41.8	260	405	595	804	230	329	42	41	25	23
2005	41.6	268	429	613	826	234	341	44	43	27	26
2006	41.3	270	443	631	855	238	356	44	44	29	27
2007	41.2	283	468	668	895	246	379	46	45	31	32
2008	41.2	286	470	681	918	250	381	47	46	32	33

Source: U.S. National Center for Education Statistics,
Digest of Education Statistics, annual
or Table 295 Statistical Abstract 2011

Dramatic changes in labor force participation rates for women, along with increased human capital investment in higher education, are not reflected in the worklife expectancy rates of females or males in Bulletin 2254.

Tables 4 and 5 show side-by-side comparisons of how the worklife expectancies of Bulletin 2254 compare with those of Skoog, Ciecka and Krueger (2011).

Age	Active Females Skoog, Ciecka and Kruger compared to Bulletin 2254															
	All Women	Less than High School			High School ¹		Some College ²			Bachelor's Degree ³		Master's Degree ⁴		Professional and Ph.D. ⁵		
		Mean	SCK	2254 <HS	Difference in Years	SCK	Difference in Years	SCK	2254 hs-14	Difference in Years	SCK	2254 >15 yr	Difference in Years	MA	Difference in Years	SCK
16	34.40	24.89	22.80	2.09												
17	33.85	24.41	22.30	2.11	33.55											
18	33.27	23.92	21.90	2.02	32.91	3.31	35.70	29.60	6.10							
19	32.66	23.43	21.50	1.93	32.28	3.28	35.13	29.00	6.13							
20	32.03	22.94	21.10	1.84	31.65	3.25	34.52	28.40	6.12	36.90	32.20	4.70				
21	31.40	22.48	20.60	1.88	31.07	3.27	33.91	27.80	6.11	36.39	31.40	4.99				
22	30.75	22.04	20.20	1.84	30.48	3.28	33.24	27.20	6.04	35.64	30.70	4.94	37.24	6.54		
23	30.09	21.59	19.80	1.79	29.90	3.40	32.56	26.50	6.06	34.83	30.00	4.83	36.44	6.44		
24	29.41	21.13	19.40	1.73	29.30	3.40	31.86	25.90	5.96	33.99	29.30	4.69	35.66	6.36	38.48	9.18
25	28.73	20.69	18.90	1.79	28.68	3.38	31.15	25.30	5.85	33.20	28.80	4.40	34.91	6.11	37.66	8.86
26	28.04	20.25	18.50	1.75	28.05	3.35	30.43	24.70	5.73	32.41	27.90	4.51	34.18	6.28	36.87	8.97
27	27.33	19.80	18.10	1.70	27.41	3.31	29.71	24.10	5.61	31.63	27.20	4.43	33.42	6.22	36.11	8.91
28	26.62	19.33	17.70	1.63	26.77	3.27	28.99	23.50	5.49	30.85	26.50	4.35	32.61	6.11	35.26	8.76
29	25.90	18.86	17.20	1.66	26.11	3.21	28.26	22.90	5.36	30.08	25.90	4.18	31.79	5.89	34.40	8.50
30	25.17	18.39	16.80	1.59	25.46	3.16	27.54	22.30	5.24	29.31	25.20	4.11	30.98	5.78	33.57	8.37
31	24.45	17.92	16.40	-0.48	24.81	3.11	26.83	21.70	5.13	28.55	24.50	4.05	30.19	5.69	32.75	8.25
32	23.72	17.45	16.00	1.45	24.14	3.04	26.13	21.10	5.03	27.79	23.80	3.99	29.40	5.60	31.91	8.11
33	22.98	16.99	15.60	1.39	23.48	3.08	25.42	20.40	5.02	27.04	23.10	3.94	28.61	5.51	31.04	7.94
34	22.24	16.52	15.20	1.32	22.82	3.02	24.71	19.80	4.91	26.29	22.40	3.89	27.82	5.42	30.17	7.77
35	21.50	16.06	14.80	1.26	22.17	2.97	24.00	19.20	4.80	25.55	21.70	3.85	27.02	5.32	29.31	7.61
36	20.76	15.61	14.40	1.21	21.51	2.91	23.28	18.80	4.48	24.80	21.00	3.80	26.22	5.22	28.45	7.45
37	20.02	15.17	14.00	1.17	20.85	2.95	22.55	17.90	4.65	24.05	20.20	3.85	25.42	5.22	27.61	7.41
38	19.27	14.70	13.50	1.20	20.18	2.88	21.80	17.30	4.50	23.30	19.50	3.80	24.60	5.10	26.77	7.27
39	18.53	14.22	13.10	1.12	19.50	0.80	21.04	18.70	2.34	22.54	18.70	3.84	23.78	5.08	25.96	7.26
40	17.78	13.74	12.70	1.04	18.83	0.83	20.28	18.00	2.28	21.78	18.00	3.78	22.95	4.95	25.16	7.16
41	17.04	13.28	12.30	0.98	18.14	2.74	19.53	15.40	4.13	21.02	17.30	3.72	22.13	4.83	24.34	7.04
42	16.30	12.79	11.80	0.99	17.44	2.64	18.78	14.80	3.98	20.25	16.50	3.75	21.30	4.80	23.50	7.00
43	15.56	12.26	11.40	0.86	16.76	2.56	18.03	14.20	3.83	19.47	15.80	3.67	20.46	4.66	22.65	6.85
44	14.83	11.74	11.00	0.74	16.07	2.27	17.29	13.80	3.49	18.69	15.10	3.59	19.61	4.51	21.81	6.71
45	14.10	11.23	10.50	0.73	15.38	2.38	16.55	13.00	3.55	17.92	14.40	3.52	18.77	4.37	20.98	6.58
46	13.37	10.72	10.00	0.72	14.71	2.31	15.82	12.40	3.42	17.14	13.70	3.44	17.93	4.23	20.14	6.44
47	12.65	10.22	9.60	0.62	14.06	2.16	15.09	11.90	3.19	16.36	13.00	3.36	17.09	4.09	19.29	6.29
48	11.96	9.74	9.10	0.64	13.41	2.01	14.37	11.40	2.97	15.58	12.30	3.28	16.25	3.95	18.47	6.17
49	11.27	9.29	8.70	0.59	12.77	1.97	13.65	10.80	2.85	14.79	11.80	2.99	15.41	3.61	17.69	5.89
50	10.60	8.86	8.30	0.56	12.13	1.83	12.96	10.30	2.66	14.02	10.90	3.12	14.58	3.68	16.94	6.04
51	9.94	8.45	7.90	0.55	11.50	1.60	12.28	9.90	2.38	13.25	10.20	3.05	13.76	3.56	16.19	5.99
52	9.30	8.03	7.50	0.53	10.88	1.58	11.60	9.30	2.30	12.48	9.80	2.68	12.96	3.16	15.44	5.64
53	8.68	7.61	7.10	0.51	10.26	3.76	10.95	6.50	4.45	11.74	9.00	2.74	12.17	3.17	14.72	5.72
54	8.08	7.17	6.70	0.47	9.65	3.45	10.31	6.20	4.11	11.01	8.30	2.71	11.39	3.09	14.03	5.73
55	7.53	6.73	6.30	0.43	9.03	1.33	9.68	7.70	1.98	10.31	7.80	2.51	10.65	2.85	13.34	5.54
56	6.99	6.29	5.90	0.39	8.43	1.23	9.08	7.20	1.88	9.63	7.20	2.43	9.93	2.73	12.65	5.45
57	6.47	5.88	5.50	0.38	7.84	-0.86	8.47	8.70	-0.23	8.98	6.70	2.28	9.26	2.56	11.94	5.24
58	5.97	5.46	5.20	0.26	7.26	0.96	7.88	6.30	1.58	8.37	6.30	2.07	8.63	2.33	11.22	4.92
59	5.50	5.05	4.90	0.15	6.73	0.93	7.31	5.80	1.51	7.78	5.80	1.98	8.04	2.24	10.56	4.76
60	5.08	4.67	4.60	0.07	6.23	0.83	6.77	5.40	1.37	7.24	5.40	1.84	7.50	2.10	9.96	4.56
61	4.69	4.32	4.30	0.02	5.77	0.77	6.27	5.00	1.27	6.73	5.10	1.63	6.99	1.89	9.40	4.30
62	4.37	4.00	4.10	-0.10	5.38	0.68	5.81	4.70	1.11	6.26	4.80	1.46	6.51	1.71	8.84	4.04
63	4.08	3.71	3.90	-0.19	5.07	0.67	5.42	4.40	1.02	5.85	4.60	1.25	6.08	1.48	8.33	3.73
64	3.82	3.45	3.70	-0.25	4.82	0.62	5.09	4.20	0.89	5.46	4.30	1.16	5.73	1.43	7.89	3.59
65	3.60	3.23	3.50	-0.27	4.62	0.62	4.81	4.00	0.81	5.09	4.10	0.99	5.45	1.35	7.50	3.40
66	3.39	3.05	3.30	-0.25	4.43	0.63	4.56	3.80	0.76	4.78	4.00	0.78	5.20	1.20	7.10	3.10
67	3.21	2.90	3.10	-0.20	4.26	0.56	4.34	3.70	0.64	4.50	3.80	0.70	4.98	1.18	6.62	2.82
68	3.07	2.77	3.00	-0.23	4.11	0.61	4.16	3.50	0.66	4.25	3.70	0.55	4.82	1.12	6.26	2.56
69	2.93	2.68	2.90	-0.22	3.96	0.56	4.01	3.40	0.61	4.03	3.60	0.43	4.75	1.15	6.12	2.52
70	2.79	2.59	2.70	-0.11	3.79	0.59	3.83	3.20	0.63	3.82	3.50	0.32	4.67	1.17	6.07	2.57
71	2.61	2.51	2.50	0.01	3.64	0.64	3.68	3.00	0.68	3.69	3.30	0.39	4.50	1.20	6.03	2.73
72	2.41	2.42	2.30	0.12	3.48	0.68	3.61	2.80	0.81	3.62	3.00	0.62	4.26	1.26	5.94	2.94
73	2.20	2.32	2.00	0.32	3.33	0.83	3.54	2.50	1.04	3.58	2.70	0.88	3.94	1.24	5.81	3.11
74	2.01	2.28	1.70	0.58	3.19	1.09	3.48	2.10	1.38	3.59	2.30	1.29	3.60	1.30	5.76	3.46
75	1.83	2.26	1.20	1.06	3.05	1.55	3.40	1.50	1.90	3.60	1.60	2.00	3.31	1.71	5.63	4.03

- Bulletin 2254 is for high school to 14 years of schooling, Skoog, Ciecka & Kruger is HS Diploma only
- Bulletin 2254 is for high school to 14 years of schooling, Skoog, Ciecka & Kruger is only for some college but no degree
- Bulletin 2254 is for 15 years or more of schooling, Skoog, Ciecka & Kruger is for Bachelor's degree
- Bulletin 2254 is for 15 years or more of schooling, Skoog, Ciecka & Kruger is for Master's degree
- Bulletin 2254 is for 15 years or more of schooling, Skoog, Ciecka & Kruger is for Professional and Ph.D. degree

Age	All Men		Less than High School			High School ¹		Some College ²			Bachelor's Degree ³			Master's Degree ⁴		Professional and Ph.D. ⁵	
	Mean	SCK	2254 <HS	Difference in Years	SCK	Difference in Years	SCK	2254 hs-14	Difference in Years	SCK	2254 >15 yr	Difference in Years	SCK MA	Difference in Years	SCK PHD	Difference in Years	
				SCK		SCK			SCK			SCK		SCK		SCK	
16	39.47	34.65	35.60	-0.95													
17	39.01	34.18	35.00	-0.82	39.45												
18	38.50	33.70	34.50	-0.80	38.72	-0.78	38.88	39.50	-0.62								
19	37.95	33.19	33.90	-0.71	38.00	-0.80	38.25	38.80	-0.55								
20	37.28	32.66	33.30	-0.64	37.28	-0.82	37.59	38.10	-0.51	40.07	40.2	-0.13					
21	36.63	32.08	32.60	-0.52	36.60	-0.70	36.96	37.30	-0.34	39.53	39.6	-0.07					
22	35.94	31.47	32.00	-0.53	35.90	-0.70	36.30	36.60	-0.30	38.83	38.9	-0.07	40.70				
23	35.20	30.81	31.20	-0.39	35.18	-0.62	35.60	35.80	-0.20	38.06	38.2	-0.14	40.18				
24	34.42	30.11	30.50	-0.39	34.43	-0.47	34.88	34.90	-0.02	37.31	37.4	-0.09	39.53		41.56	4.16	
25	33.62	29.37	29.80	-0.43	33.64	-0.46	34.13	34.10	0.03	36.51	36.6	-0.09	38.63		40.83	4.23	
26	32.79	28.61	29.00	-0.39	32.84	-0.36	33.34	33.20	0.14	35.67	35.8	-0.13	37.73	1.93	40.08	4.28	
27	31.95	27.85	28.20	-0.35	32.04	-0.36	32.51	32.40	0.11	34.80	34.9	-0.10	36.83	1.93	39.34	4.44	
28	31.09	27.08	27.50	-0.42	31.22	-0.28	31.67	31.50	0.17	33.92	34	-0.08	35.94	1.94	38.52	4.52	
29	30.22	26.31	26.70	-0.39	30.40	-0.20	30.82	30.60	0.22	33.03	33.2	-0.17	35.03	1.83	37.64	4.44	
30	29.35	25.52	25.90	-0.38	29.57	-0.13	29.97	29.70	0.27	32.12	32.3	-0.18	34.13	1.83	36.78	4.48	
31	28.48	24.74	25.20	-0.46	28.74	-0.16	29.10	28.90	0.20	31.20	31.4	-0.20	33.23	1.83	35.89	4.49	
32	27.61	23.97	24.40	-0.43	27.90	-0.10	28.23	28.00	0.23	30.28	30.5	-0.22	32.33	1.83	34.99	4.49	
33	26.75	23.19	23.60	-0.41	27.07	-0.03	27.35	27.10	0.25	29.36	29.6	-0.24	31.42	1.82	34.10	4.50	
34	25.89	22.41	22.80	-0.39	26.22	0.02	26.49	26.20	0.29	28.44	28.7	-0.26	30.52	1.82	33.20	4.50	
35	25.03	21.63	22.00	-0.37	25.37	-0.03	25.62	25.40	0.22	27.52	27.7	-0.18	29.61	1.91	32.30	4.60	
36	24.17	20.85	21.20	-0.35	24.51	0.01	24.74	24.50	0.24	26.59	26.8	-0.21	28.69	1.89	31.39	4.59	
37	23.32	20.06	20.40	-0.34	23.66	0.06	23.87	23.60	0.27	25.67	25.9	-0.23	27.77	1.87	30.47	4.57	
38	22.47	19.28	19.60	-0.32	22.81	0.01	23.00	22.80	0.20	24.76	25	-0.24	26.84	1.84	29.56	4.56	
39	21.62	18.50	18.90	-0.40	21.97	0.07	22.13	21.90	0.23	23.85	24.1	-0.25	25.92	1.82	28.64	4.54	
40	20.77	17.74	18.10	-0.36	21.14	0.14	21.28	21.00	0.28	22.93	23.2	-0.27	24.99	1.79	27.73	4.53	
41	19.94	16.99	17.30	-0.31	20.31	0.11	20.42	20.20	0.22	22.03	22.3	-0.27	24.07	1.77	26.82	4.52	
42	19.11	16.27	16.60	-0.33	19.50	0.20	19.58	19.30	0.28	21.13	21.4	-0.27	23.15	1.75	25.91	4.51	
43	18.29	15.59	15.80	-0.21	18.70	0.20	18.75	18.50	0.25	20.23	20.5	-0.27	22.25	1.75	25.01	4.51	
44	17.46	14.94	15.10	-0.16	17.92	0.32	17.94	17.60	0.34	19.34	19.7	-0.36	21.35	1.65	24.11	4.41	
45	16.64	14.31	14.30	0.01	17.14	0.34	17.14	16.80	0.34	18.45	18.8	-0.35	20.45	1.65	23.21	4.41	
46	15.82	13.70	13.60	0.10	16.36	0.36	16.35	16.00	0.35	17.56	17.9	-0.34	19.55	1.65	22.33	4.43	
47	15.01	13.10	12.90	0.20	15.58	0.48	15.56	15.10	0.46	16.69	17.1	-0.41	18.67	1.57	21.44	4.34	
48	14.21	12.51	12.10	0.41	14.81	0.51	14.78	14.30	0.48	15.82	16.3	-0.48	17.79	1.49	20.56	4.26	
49	13.42	11.93	11.40	0.53	14.04	0.54	14.03	13.50	0.53	14.96	15.4	-0.44	16.91	1.51	19.70	4.30	
50	12.63	11.36	10.70	0.66	13.29	0.49	13.29	12.80	0.49	14.12	14.6	-0.48	16.04	1.44	18.84	4.24	
51	11.86	10.80	10.10	0.70	12.54	0.54	12.56	12.00	0.56	13.30	13.8	-0.50	15.18	1.38	17.98	4.18	
52	11.10	10.25	9.40	0.85	11.80	0.60	11.86	11.20	0.66	12.50	13	-0.50	14.34	1.34	17.13	4.13	
53	10.37	9.69	8.70	0.99	11.09	0.59	11.17	10.50	0.67	11.72	12.2	-0.48	13.51	1.31	16.29	4.09	
54	9.66	9.13	8.10	1.03	10.39	0.69	10.51	9.70	0.81	10.97	11.5	-0.53	12.70	1.20	15.46	3.96	
55	8.97	8.58	7.50	1.08	9.71	0.71	9.88	9.00	0.88	10.23	10.7	-0.47	11.91	1.21	14.64	3.94	
56	8.30	8.02	6.80	1.22	9.04	0.74	9.26	8.30	0.96	9.52	10	-0.48	11.14	1.14	13.82	3.82	
57	7.65	7.47	6.30	1.17	8.39	0.79	8.65	7.60	1.05	8.82	9.3	-0.48	10.41	1.11	13.03	3.73	
58	7.04	6.91	5.80	1.11	7.75	0.75	8.06	7.00	1.06	8.16	8.6	-0.44	9.71	1.11	12.26	3.66	
59	6.48	6.38	5.20	1.18	7.16	0.76	7.50	6.40	1.10	7.53	8	-0.47	9.05	1.05	11.51	3.51	
60	5.97	5.93	4.90	1.03	6.61	0.71	6.97	5.90	1.07	6.94	7.4	-0.46	8.42	1.02	10.79	3.39	
61	5.51	5.51	4.50	1.01	6.11	0.61	6.47	5.50	0.97	6.39	7	-0.61	7.83	0.83	10.11	3.11	
62	5.12	5.16	4.20	0.96	5.67	0.57	6.00	5.10	0.90	5.87	6.5	-0.63	7.29	0.79	9.47	2.97	
63	4.77	4.87	3.90	0.97	5.30	0.50	5.59	4.80	0.79	5.42	6.1	-0.68	6.79	0.69	8.87	2.77	
64	4.47	4.65	3.70	0.95	4.98	0.48	5.23	4.50	0.73	5.03	5.7	-0.67	6.35	0.65	8.27	2.57	
65	4.20	4.48	3.60	0.88	4.72	0.42	4.89	4.30	0.59	4.70	5.4	-0.70	5.93	0.53	7.70	2.30	
66	3.96	4.30	3.40	0.90	4.49	0.39	4.55	4.10	0.45	4.43	5.1	-0.67	5.53	0.43	7.21	2.11	
67	3.74	4.10	3.30	0.80	4.28	0.38	4.24	3.90	0.34	4.21	4.9	-0.69	5.11	0.21	6.80	1.90	
68	3.53	3.90	3.20	0.70	4.09	0.39	3.97	3.70	0.27	4.00	4.6	-0.60	4.69	0.09	6.44	1.84	
69	3.36	3.74	3.10	0.64	3.92	0.32	3.74	3.60	0.14	3.81	4.4	-0.59	4.30	-0.10	6.12	1.72	
70	3.19	3.57	2.90	0.67	3.74	0.34	3.49	3.40	0.09	3.65	4.1	-0.45	4.00	-0.10	5.83	1.73	
71	3.01	3.41	2.80	0.61	3.60	0.40	3.23	3.20	0.03	3.49	3.9	-0.41	3.77	-0.13	5.57	1.67	
72	2.81	3.28	2.60	0.68	3.48	0.48	3.03	3.00	0.03	3.33	3.6	-0.27	3.51	-0.09	5.28	1.68	
73	2.61	3.17	2.30	0.87	3.37	0.67	2.86	2.70	0.16	3.20	3.2	0.00	3.26	0.06	4.96	1.76	
74	2.44	3.05	2.00	1.05	3.20	0.90	2.69	2.30	0.39	3.07	2.7	0.37	3.16	0.46	4.61	1.91	
75	2.26	2.88	1.60	1.28	2.99	1.19	2.57	1.80	0.77	2.94	2.2	0.74	3.14	0.94	4.21	2.01	

1. Bulletin 2254 is for high school to 14 years of schooling, Skoog, Ciecka & Kruger is HS Diploma only
2. Bulletin 2254 is for high school to 14 years of schooling, Skoog, Ciecka & Kruger is only for some college but no degree
3. Bulletin 2254 is for 15 years or more of schooling, Skoog, Ciecka & Kruger is for Bachelor's degree
4. Bulletin 2254 is for 15 years or more of schooling, Skoog, Ciecka & Kruger is for Master's degree
5. Bulletin 2254 is for 15 years or more of schooling, Skoog, Ciecka & Kruger is for Professional and Ph.D. degree

Table 4 compares active females. The shaded columns show the difference in years of worklife between Bulletin 2254 and Skoog, Ciecka and Krueger. A positive number shows that the number of worklife years is reduced if Bulletin 2254 is used rather than Skoog, Ciecka and Krueger. If the number is negative, then Skoog, Ciecka and Krueger show an decreased number of years of worklife. Table 4 shows how using Bulletin 2254 would undercount the years of labor force activity for most females. This is most dramatic for females with bachelor's and graduate degrees. The worklife projections in Bulletin 2254 are consistently low for females in their prime earning years. The gap narrows with age perhaps because the increase in female labor market activity since Bulletin 2254 data were collected has made women more financially independent and provided them with pensions. Females with less than a high school education have the smallest gap between Bulletin 2254 and the Skoog, Ciecka, and Krueger 2011 tables.

Some of the difference may be due to the grouping of the data. For example, Bulletin 2254 has a category for those with a high school degree and up to 14 years of education. This includes some people who have attended college but do not have a bachelor's degree and may include those with associate degrees. Skoog, Ciecka and Krueger have separate categories for high school diploma, some college, bachelor's degree, master's degree and professional and Ph.D. degrees. The separation of advanced degrees to master's and professional degrees is a major change from the Skoog and Ciecka (2001) tables.

The Skoog and Ciecka (2001) worklife expectancy tables captured the trend of increasing worklife for females. Tables 6 and 7 in the Appendix show the gap between the Skoog and Ciecka (2001) worklife expectancy compared to the 2254 tables. Tables 4 and 5 using the Skoog, Ciecka and Krueger (2011) tables show that the trend of increased labor force participation for females has continued from Skoog and Ciecka (2001) thus providing further evidence that Bulletin 2254 tables should not be used.

Bulletin 2254 has a separate category for 16 years or more of education. This may or may not include a person with a bachelor's degree and can include someone with a Ph.D. A DE using Bulletin 2254 would thus be limited to data that includes persons who did not attain a bachelor's degree with those that have a Ph.D. The Bulletin 2254 tables also group persons with a high school diploma with those that may have gone to college for two years. Given how contemporary worklife tables have much more discrete and realistic educational cohorts, the use of Bulletin 2254 can bias the results.

Table 5 shows the difference for males. A negative number indicates that Bulletin 2254 would overstate the male worklife expectancy. This is consistent with declining labor force participation rates for males. However, this gap is generally small until achieving a master's, professional or Ph.D. degree. The Skoog, Ciecka and Krueger tables show that for males with masters, professional and Ph.D. degrees the old tables substantially underestimate their worklife expectancy.

Conclusion

This paper's purpose is to demonstrate that Bulletin 2254 should not be used because structural changes in the labor market for females have dramatically changed since its publication. Comparing the difference in worklife between Bulletin 2254 and Skoog, Ciecka and Krueger (2011) captures how these structural changes are not accounted for in Bulletin 2254 and thus would bias projections - especially against females. As data on labor force participation rates and educational attainment for females show, the structural changes in the economy have had a larger impact on females. The older Bulletin 2254 tables do not capture this change, resulting in an underestimation of worklife. Testimony about earning losses for females based on Bulletin 2254 would systematically understate years of worklife resulting in smaller losses.

References

- Aaronson, Stephanie, Bruce Fallick, Andrew Figura, Jonathan Pingle, and William Wascher. 2006. "The Recent Decline in the Labor Force Participation Rate and Its Implications for Potential Labor Supply." *Brookings Paper on Economic Activity*, 1: 69-154.
- Brookshire, Michael L. and William E. Cobb. 1983. "The Life-Participation-Employment Approach to Worklife Expectancy in Personal Injury and Wrongful Death Cases." *For the Defense*, July: 20-25.
- Brookshire, Michael L. and George A. Barrett. 2009. "Worklife and LPE." In G.D. Martin, *Determining Economic Damages*. 12-41 -12-51. Costa Mesa, CA: James Publishing Company.
- Brookshire, Michael, Michael Luthy and Frank Slesnick. 2009. "A 2009 Survey of Forensic Economists: Their Methods, Estimates, and Perspectives." *Journal of Forensic Economics*, 21(1): 5-34.
- Ciecka, James, Thomas Donley, and Jerry Goldman. 2000. "A Markov Process Model of Work-Life Expectancies Based on Labor Market Activity in 1997-98." *Journal of Legal Economics*, 9(3): 33-66.
- Corcione, Frank and Robert Thornton. 1991. "Female Work Experience: Voluntary versus Involuntary Labor Force Activity." *Journal of Forensic Economics*, 4(2): 163-74.
- Foster, Edward M. and Gary R. Skoog. 2004. "The Markov Assumption for Worklife Expectancy." *Journal of Forensic Economics*, 17(2):167-183.

- Gendell, Murray. 2008. "Older Workers: Increasing Their Labor Force Participation and Hours of Work." *Monthly Labor Review*, January: 41-54.
- Hoffman, Saul D. 2009. "The Changing Impact of Marriage and Children on Women's Labor Force Participation." *Monthly Labor Review*, February: 3-14.
- Hotchkiss, Julie L. 2009. "Decomposing Changes in the Aggregate Labor Force Participation Rate." *Working Paper 2009-6*, March, Research Department, Federal Reserve Bank of Atlanta, www.frbatlanta.org.
- Ireland, Thomas R. 2009. "Markov Process Work-Life Expectancy Tables, the LPE Method for Measuring Worklife Expectancy, and Why the Gamboa-Gibson Worklife Expectancy Tables are Without Merit." *The Rehabilitation Professional*, 17(3): 111-126.
- Krueger, Kurt. 2004. "Tables of Inter-Year Labor Force Status of the U.S. Population (1998-2004) to Operate the Markov Model of Worklife Expectancy." *Journal of Forensic Economics*, 17(3): 313-381.
- Krueger, Kurt V., Gary R. Skoog, and James E. Ciecka. 2006. "Worklife in a Markov Model with Full-time and Part-time Activity." *Journal of Forensic Economics*, 19(1): 61-82.
- Millimet, D.L., M. Nieswiadomy, H. Ryu, and D. Slottie. 2003. "Estimating Worklife Expectancy: An Econometric Approach." *Journal of Econometrics*, 113: 83-113.
- M.P. McQueen. 2010. "Better Education Shields Women from Worst of Job Cuts." *The Wall Street Journal*, February 12: A4.
- New York Pattern Jury Instructions (PJI) PJI 2:209, PJI 2:230.1, PJI 2:300, PJI 2:320, PJI 2:290; Articles 50-A (CPLR 5031-5039) in 1985 and 50-B (CPLR 5041-5049) in 1986.
- Pew Research Center. 2009. *America's Changing Workforce, Recession Turns a Graying Office Grayer*, September 3.
- Skoog, Gary and James Ciecka. 2001. "A Markov (Increment-Decrement) Model of Labor Force Activity: Extended Tables of Central Tendency, Variation, and Probability Intervals." *Journal of Legal Economics*, 11(1), published in 2003: 23-87.
- Skoog, Gary R. and James E. Ciecka and Kurt V. Krueger. 2011. "The Markov Model of Labor Force Activity: Extended Tables of Central Tendency, shape, Percentile Points, and Bootstrap Standard Errors." *Journal of Forensic Economics*, 22(2): 165-229.

Smith, Shirley. 1986. "Revised worklife tables reflect 1979-80 experience." *U.S. Department of Labor, Bureau of Labor Statistics*, February: 1-33.

Spizman, Lawrence, and Elizabeth Dunne-Schmitt. 2000. "The Unintended Consequences of Tort Reform: Rent Seeking in New York State's Structured Settlements Statutes." *Journal of Forensic Economics*, 13(1): 29-48.

State of Rhode Island General Laws, Title 9 Courts and Civil Procedure - Procedure Generally, Chapter 9-19-38 Evidence, Proof of Life or Life Expectancy.

Toossi, Mitra. 2009. "Labor Force Projections to 2018: Older Workers Staying More Active." *Monthly Labor Review*, November: 30-51.

Appendix

Table 6 Active Females Skoog & Ciecka compared to Bulletin 2254														
Age	All Women Mean	Less Than H.S.			High School ¹		Some College ²			4 Year Degree ³			Grad. Degree ⁴	
		S/C Mean	2254 <HS	Difference in Years	S/C Mean	Difference in Years	S/C Mean	2254 hs-14	Difference in Years	S/C Mean	2254 >15 yr	Difference in Years	S/C Mean	Difference in Years
16	34.40	25.80	22.80	3.00										
17	33.85	25.24	22.30	2.94										
18	33.27	24.64	21.90	2.74	32.62	3.02	35.28	29.60	5.68					
19	32.66	24.05	21.50	2.55	31.92	2.92	34.59	29.00	5.59					
20	32.03	23.47	21.10	2.37	31.20	2.80	33.95	28.40	5.55		32.20			
21	31.40	22.97	20.60	2.37	30.48	2.68	33.33	27.80	5.53		31.40			
22	30.75	22.48	20.20	2.28	29.80	2.60	32.65	27.20	5.45	34.12	30.70	3.42		
23	30.09	22.02	19.80	2.22	29.09	2.59	31.94	26.50	5.44	33.37	30.00	3.37		
24	29.41	21.59	19.40	2.19	28.39	2.49	31.22	25.90	5.32	32.61	29.30	3.31		
25	28.73	21.16	18.90	2.26	27.69	2.39	30.49	25.30	5.19	31.83	28.80	3.03		
26	28.04	20.72	18.50	2.22	27.00	2.30	29.74	24.70	5.04	30.99	27.90	3.09	34.10	6.20
27	27.33	20.25	18.10	2.15	26.31	2.21	28.98	24.10	4.88	30.23	27.20	3.03	33.32	6.12
28	26.62	19.77	17.70	2.07	25.61	2.11	28.23	23.50	4.73	29.47	26.50	2.97	32.36	5.86
29	25.90	19.29	17.20	2.09	24.90	2.00	27.46	22.90	4.56	28.71	25.90	2.81	31.42	5.52
30	25.17	18.80	16.80	2.00	24.19	1.89	26.70	22.30	4.40	27.96	25.20	2.76	30.57	5.37
31	24.45	18.29	16.40	-0.11	23.48	1.78	25.93	21.70	4.23	27.21	24.50	2.71	29.75	5.25
32	23.72	17.75	16.00	1.75	22.75	1.65	25.17	21.10	4.07	26.48	23.80	2.68	28.91	5.11
33	22.98	17.19	15.60	1.59	22.02	1.62	24.39	20.40	3.99	25.75	23.10	2.65	28.09	4.99
34	22.24	16.63	15.20	1.43	21.27	1.47	23.62	19.80	3.82	25.02	22.40	2.62	27.28	4.88
35	21.50	16.08	14.80	1.28	20.53	1.33	22.84	19.20	3.64	24.28	21.70	2.58	26.48	4.78
36	20.76	15.52	14.40	1.12	19.78	0.98	22.06	18.80	3.26	23.55	21.00	2.55	25.66	4.66
37	20.02	14.94	14.00	0.94	19.03	1.13	21.27	17.90	3.37	22.82	20.20	2.62	24.84	4.64
38	19.27	14.37	13.50	0.87	18.29	0.99	20.48	17.30	3.18	22.08	19.50	2.58	24.03	4.53
39	18.53	13.80	13.10	0.70	17.54	-1.16	19.69	18.70	0.99	21.33	18.70	2.63	23.21	4.51
40	17.78	13.23	12.70	0.53	16.80	-1.20	18.90	18.00	0.90	20.57	18.00	2.57	22.39	4.39
41	17.04	12.68	12.30	0.38	16.07	0.67	18.12	15.40	2.72	19.81	17.30	2.51	21.56	4.26
42	16.30	12.16	11.80	0.36	15.33	0.53	17.34	14.80	2.54	19.03	16.50	2.53	20.72	4.22
43	15.56	11.69	11.40	0.29	14.60	0.40	16.56	14.20	2.36	18.25	15.80	2.45	19.88	4.08
44	14.83	11.21	11.00	0.21	13.88	0.08	15.78	13.80	1.98	17.46	15.10	2.36	19.04	3.94
45	14.10	10.72	10.50	0.22	13.16	0.16	15.01	13.00	2.01	16.68	14.40	2.28	18.18	3.78
46	13.37	10.23	10.00	0.23	12.46	0.06	14.25	12.40	1.85	15.89	13.70	2.19	17.31	3.61
47	12.65	9.78	9.60	0.18	11.77	-0.13	13.50	11.90	1.60	15.11	13.00	2.11	16.43	3.43
48	11.96	9.38	9.10	0.28	11.11	-0.29	12.75	11.40	1.35	14.32	12.30	2.02	15.57	3.27
49	11.27	9.00	8.70	0.30	10.47	-0.33	12.02	10.80	1.22	13.54	11.80	1.74	14.72	2.92
50	10.60	8.59	8.30	0.29	9.85	-0.45	11.29	10.30	0.99	12.75	10.90	1.85	13.89	2.99
51	9.94	8.17	7.90	0.27	9.25	-0.65	10.57	9.90	0.67	11.99	10.20	1.79	13.06	2.86
52	9.30	7.68	7.50	0.18	8.68	-0.62	9.88	9.30	0.58	11.24	9.80	1.44	12.26	2.46
53	8.68	7.18	7.10	0.08	8.13	1.63	9.21	6.50	2.71	10.51	9.00	1.51	11.46	2.46
54	8.08	6.73	6.70	0.03	7.61	1.41	8.58	6.20	2.38	9.81	8.30	1.51	10.70	2.40
55	7.53	6.32	6.30	0.02	7.11	-0.59	7.96	7.70	0.26	9.14	7.80	1.34	9.98	2.18
56	6.99	5.92	5.90	0.02	6.63	-0.57	7.37	7.20	0.17	8.50	7.20	1.30	9.26	2.06
57	6.47	5.50	5.50	0.00	6.17	-2.53	6.80	6.70	-1.90	7.88	6.70	1.18	8.55	1.85
58	5.97	5.09	5.20	-0.11	5.71	-0.59	6.26	6.30	-0.04	7.28	6.30	0.98	7.86	1.56
59	5.50	4.70	4.90	-0.20	5.29	-0.51	5.74	5.80	-0.06	6.78	5.80	0.98	7.22	1.42
60	5.08	4.32	4.60	-0.28	4.89	-0.51	5.25	5.40	-0.15	6.34	5.40	0.94	6.62	1.22
61	4.69	4.03	4.30	-0.27	4.54	-0.46	4.80	5.00	-0.20	5.94	5.10	0.84	6.07	0.97
62	4.37	3.83	4.10	-0.27	4.25	-0.45	4.39	4.70	-0.31	5.56	4.80	0.76	5.57	0.77
63	4.08	3.64	3.90	-0.26	3.98	-0.42	4.05	4.40	-0.35	5.20	4.60	0.60	5.08	0.48
64	3.82	3.46	3.70	-0.24	3.73	-0.47	3.79	4.20	-0.41	4.93	4.30	0.63	4.62	0.32
65	3.60	3.29	3.50	-0.21	3.51	-0.49	3.58	4.00	-0.42	4.72	4.10	0.62	4.30	0.20
66	3.39	3.13	3.30	-0.17	3.29	-0.51	3.34	3.80	-0.46	4.49	4.00	0.49	4.03	0.03
67	3.21	2.97	3.10	-0.13	3.12	-0.58	3.15	3.70	-0.55	4.26	3.80	0.46	3.77	-0.03
68	3.07	2.80	3.00	-0.20	3.01	-0.49	3.03	3.50	-0.47	3.98	3.70	0.28	3.51	-0.19
69	2.93	2.65	2.90	-0.25	2.91	-0.49	2.93	3.40	-0.47	3.63	3.60	0.03	3.21	-0.39
70	2.79	2.49	2.70	-0.21	2.80	-0.40	2.86	3.20	-0.34	3.22	3.50	-0.28	2.84	-0.66
71	2.61	2.27	2.50	-0.23	2.65	-0.35	2.77	3.00	-0.23	2.90	3.30	-0.40	2.54	-0.76
72	2.41	2.10	2.30	-0.20	2.48	-0.32	2.57	2.80	-0.23	2.68	3.00	-0.32	2.36	-0.64
73	2.20	1.94	2.00	-0.06	2.31	-0.19	2.34	2.50	-0.16	2.49	2.70	-0.21	2.25	-0.45
74	2.01	1.79	1.70	0.09	2.15	0.05	2.19	2.10	0.09	2.32	2.30	0.02	2.14	-0.16
75	1.83	1.67	1.20	0.47	2.03	0.53	2.08	1.50	0.58	2.17	1.60	0.57	2.01	0.41

1. Bulletin 2254 is for high school to 14 years of educations, Skoog & Ciecka is HS Diploma only
2. Bulletin 2254 is for high school to 14 years of education, Skoog & Ciecka is only for some college but no BA degree
3. Bulletin 2254 is for 15 years or more of education, Skoog & Ciecka is for BA degree and but no graduate degree
4. Bulletin 2254 is for 15 years or more of education, Skoog & Ciecka is for graduate degree

Table 7														
Active Males Skoog & Ciecka compared to Bulletin 2254														
Age	All Men Mean	Less Than H.S.			High School ¹		Some College ²			4 Year Degree ³			Grad. Degree ⁴	
		S/C	2254	Difference	S/C	Difference	S/C	2254	Difference	S/C	2254	Difference	S/C	Difference
		Mean	<HS	in Years	Mean	in Years	Mean	hs-14	in Years	Mean	>15 yr	in Years	Mean	in Years
16	39.47	34.40	35.60	3.87										
17	39.01	33.92	35.00	4.01										
18	38.50	33.38	34.50	4.00	37.97	-1.53	38.83	39.50	-0.67					
19	37.95	32.87	33.90	4.05	37.21	-1.59	38.26	38.80	-0.54					
20	37.28	32.31	33.30	3.98	36.44	-1.66	37.62	38.10	-0.48		40.2			
21	36.63	31.69	32.60	4.03	35.68	-1.62	37.00	37.30	-0.30		39.6			
22	35.94	31.03	32.00	3.94	34.91	-1.69	36.39	36.60	-0.21	38.98	38.9	0.08		
23	35.20	30.33	31.20	4.00	34.11	-1.69	35.65	35.80	-0.15	38.17	38.2	-0.03		
24	34.42	29.57	30.50	3.92	33.30	-1.60	34.88	34.90	-0.02	37.39	37.4	-0.01		
25	33.62	28.78	29.80	3.82	32.48	-1.62	34.08	34.10	-0.02	36.57	36.6	-0.03		
26	32.79	27.97	29.00	3.79	31.65	-1.55	33.26	33.20	0.06	35.69	35.8	-0.11	37.53	1.73
27	31.95	27.15	28.20	3.75	30.81	-1.59	32.41	32.40	0.01	34.83	34.9	-0.07	36.68	1.78
28	31.09	26.35	27.50	3.59	29.96	-1.54	31.53	31.50	0.03	33.96	34	-0.04	35.76	1.76
29	30.22	25.53	26.70	3.52	29.11	-1.49	30.65	30.60	0.05	33.07	33.2	-0.13	34.83	1.63
30	29.35	24.71	25.90	3.45	28.26	-1.44	29.75	29.70	0.05	32.18	32.3	-0.12	33.91	1.61
31	28.48	23.91	25.20	3.28	27.40	-1.50	28.85	28.90	-0.05	31.28	31.4	-0.12	33.02	1.62
32	27.61	23.13	24.40	3.21	26.55	-1.45	27.95	28.00	-0.05	30.39	30.5	-0.11	32.11	1.61
33	26.75	22.36	23.60	3.15	25.71	-1.39	27.06	27.10	-0.04	29.49	29.6	-0.11	31.22	1.62
34	25.89	21.61	22.80	3.09	24.86	-1.34	26.16	26.20	-0.04	28.59	28.7	-0.11	30.33	1.63
35	25.03	20.88	22.00	3.03	24.02	-1.38	25.26	25.40	-0.14	27.68	27.7	-0.02	29.44	1.74
36	24.17	20.15	21.20	2.97	23.18	-1.32	24.37	24.50	-0.13	26.77	26.8	-0.03	28.56	1.76
37	23.32	19.41	20.40	2.92	22.35	-1.25	23.48	23.60	-0.12	25.87	25.9	-0.03	27.69	1.79
38	22.47	18.67	19.60	2.87	21.53	-1.27	22.60	22.80	-0.20	24.96	25	-0.04	26.81	1.81
39	21.62	17.93	18.90	2.72	20.71	-1.19	21.71	21.90	-0.19	24.05	24.1	-0.05	25.93	1.83
40	20.77	17.19	18.10	2.67	19.89	-1.11	20.85	21.00	-0.15	23.15	23.2	-0.05	25.05	1.85
41	19.94	16.48	17.30	2.64	19.09	-1.11	19.99	20.20	-0.21	22.25	22.3	-0.05	24.17	1.87
42	19.11	15.79	16.60	2.51	18.29	-1.01	19.13	19.30	-0.17	21.35	21.4	-0.05	23.29	1.89
43	18.29	15.08	15.80	2.49	17.51	-0.99	18.29	18.50	-0.21	20.45	20.5	-0.05	22.42	1.92
44	17.46	14.37	15.10	2.36	16.73	-0.87	17.46	17.60	-0.14	19.56	19.7	-0.14	21.53	1.83
45	16.64	13.66	14.30	2.34	15.95	-0.85	16.62	16.80	-0.18	18.67	18.8	-0.13	20.64	1.84
46	15.82	12.96	13.60	2.22	15.17	-0.83	15.80	16.00	-0.20	17.80	17.9	-0.10	19.75	1.85
47	15.01	12.28	12.90	2.11	14.39	-0.71	14.99	15.10	-0.11	16.93	17.1	-0.17	18.87	1.77
48	14.21	11.60	12.10	2.11	13.65	-0.65	14.18	14.30	-0.12	16.06	16.3	-0.24	17.98	1.68
49	13.42	10.93	11.40	2.02	12.91	-0.59	13.39	13.50	-0.11	15.21	15.4	-0.19	17.10	1.70
50	12.63	10.24	10.70	1.93	12.18	-0.62	12.59	12.80	-0.21	14.37	14.6	-0.23	16.23	1.63
51	11.86	9.57	10.10	1.76	11.45	-0.55	11.82	12.00	-0.18	13.55	13.8	-0.25	15.36	1.56
52	11.10	8.95	9.40	1.70	10.72	-0.48	11.07	11.20	-0.13	12.74	13	-0.26	14.50	1.50
53	10.37	8.33	8.70	1.67	10.02	-0.48	10.35	10.50	-0.15	11.94	12.2	-0.26	13.66	1.46
54	9.66	7.75	8.10	1.56	9.34	-0.36	9.66	9.70	-0.04	11.14	11.5	-0.36	12.83	1.33
55	8.97	7.16	7.50	1.47	8.66	-0.34	9.01	9.00	0.01	10.37	10.7	-0.33	12.02	1.32
56	8.30	6.58	6.80	1.50	8.00	-0.30	8.40	8.30	0.10	9.63	10	-0.37	11.23	1.23
57	7.65	6.03	6.30	1.35	7.35	-0.25	7.81	7.60	0.21	8.92	9.3	-0.38	10.45	1.15
58	7.04	5.53	5.80	1.24	6.73	-0.27	7.24	7.00	0.24	8.26	8.6	-0.34	9.72	1.12
59	6.48	5.08	5.20	1.28	6.18	-0.22	6.68	6.40	0.28	7.62	8	-0.38	9.04	1.04
60	5.97	4.64	4.90	1.07	5.70	-0.20	6.15	5.90	0.25	7.01	7.4	-0.39	8.43	1.03
61	5.51	4.24	4.50	1.01	5.30	-0.20	5.69	5.50	0.19	6.46	7	-0.54	7.85	0.85
62	5.12	3.90	4.20	0.92	4.95	-0.15	5.28	5.10	0.18	6.01	6.5	-0.49	7.31	0.81
63	4.77	3.62	3.90	0.87	4.64	-0.16	4.89	4.80	0.09	5.65	6.1	-0.45	6.80	0.70
64	4.47	3.43	3.70	0.77	4.39	-0.11	4.52	4.50	0.02	5.32	5.7	-0.38	6.34	0.64
65	4.20	3.25	3.60	0.60	4.17	-0.13	4.18	4.30	-0.12	4.99	5.4	-0.41	5.91	0.51
66	3.96	3.11	3.40	0.56	3.99	-0.11	3.86	4.10	-0.24	4.70	5.1	-0.40	5.51	0.41
67	3.74	2.98	3.30	0.44	3.84	-0.06	3.54	3.90	-0.36	4.41	4.9	-0.49	5.17	0.27
68	3.53	2.85	3.20	0.33	3.68	-0.02	3.26	3.70	-0.44	4.15	4.6	-0.45	4.86	0.26
69	3.36	2.75	3.10	0.26	3.54	-0.06	3.07	3.60	-0.53	3.97	4.4	-0.43	4.48	0.08
70	3.19	2.65	2.90	0.29	3.40	0.00	2.90	3.40	-0.50	3.82	4.1	-0.28	4.12	0.02
71	3.01	2.56	2.80	0.21	3.22	0.02	2.71	3.20	-0.49	3.61	3.9	-0.29	3.80	-0.10
72	2.81	2.44	2.60	0.21	3.01	0.01	2.53	3.00	-0.47	3.39	3.6	-0.21	3.51	-0.09
73	2.61	2.27	2.30	0.31	2.77	0.07	2.37	2.70	-0.33	3.28	3.2	0.08	3.20	0.00
74	2.44	2.16	2.00	0.44	2.53	0.23	2.25	2.30	-0.05	3.22	2.7	0.52	2.92	0.22
75	2.26	2.01	1.60	0.66	2.30	0.50	2.14	1.80	0.34	3.11	2.2	0.91	2.67	0.47

1. Bulletin 2254 is for high school to 14 years of educations, Skoog & Ciecka is HS Diploma only
2. Bulletin 2254 is for high school to 14 years of education, Skoog & Ciecka is only for some college but no BA degree
3. Bulletin 2254 is for 15 years or more of education, Skoog & Ciecka is for BA degree and but no graduate degree
4. Bulletin 2254 is for 15 years or more of education, Skoog & Ciecka is for graduate degree

