

WORKERS' COMPENSATION RESOURCES RESEARCH REPORT

Issue 5

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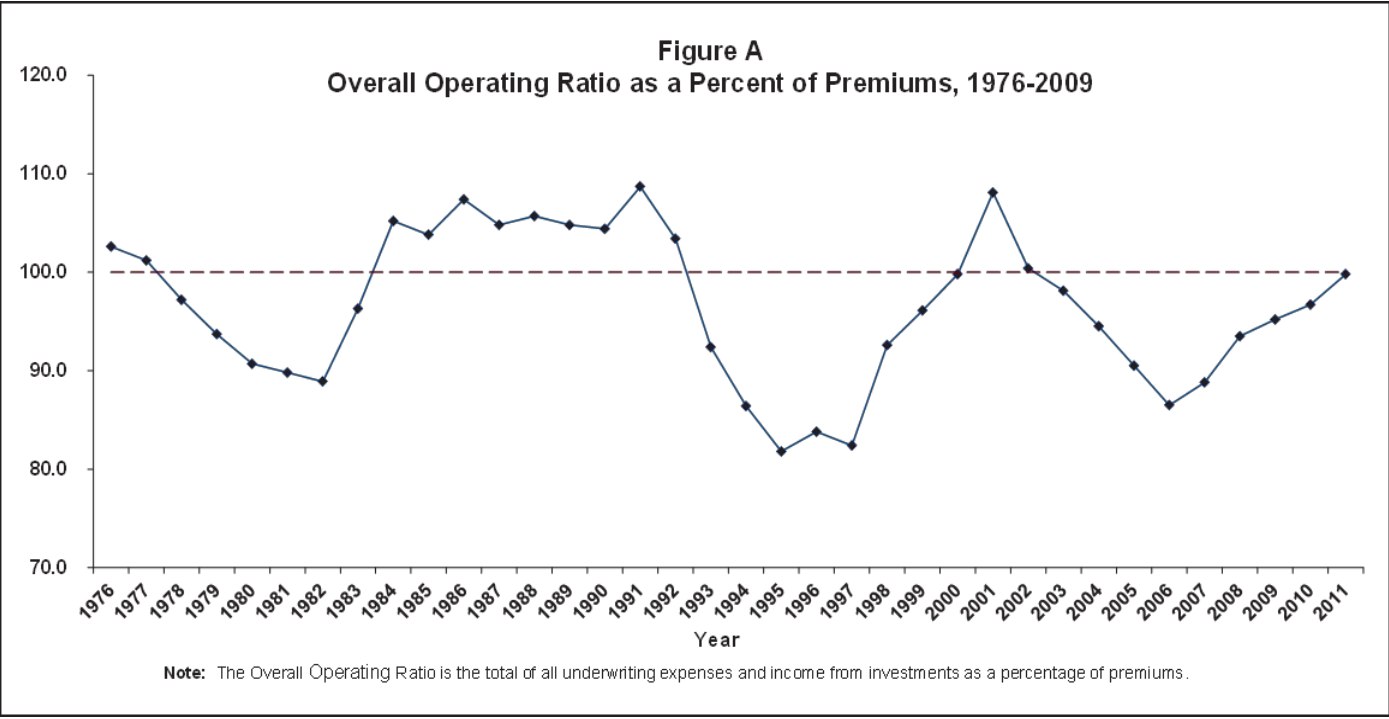
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Summary of the Contents

This issue of the *Workers' Compensation Resources Research Report* features an article examining the profitability of the workers' compensation insurance industry as reported by A.M. Best. The overall operating ratio, which is the most comprehensive measure of underwriting results because it considers investment income, increased from 96.7 in 2010 to 99.8 in 2011, as shown in Figure A. An overall operating ratio of less than 100 indicates that the industry is profitable. The workers' compensation insurance industry was profitable in 2011 for the ninth year in a row. However, the overall operating ratio increased every year between 2006 and 2011, indicating that profits have eroded for six years. Of interest, as profitability was declining during those six years, workers' compensation benefits paid to workers as a percent of payroll were stable.

The issue also contains an abstract of an article by Emily Spieler and John Burton examining the reasons why many workers with work-related disabilities do not receive workers' compensation benefits, as well as an abstract of an article by Xuguang (Steve) Guo and John Burton examining the relationship between Social Security Disability Insurance and Workers' Compensation.



Information on Two Recent Articles

The Lack of Correspondence Between Work-Related Disability and Receipt of Workers' Compensation Benefits

Emily A. Spieler and John F. Burton, Jr.
American Journal of Industrial Medicine
Vol. 55 (2012): pp. 487-505

The article can be downloaded without charge from www.workerscompresources.com

Abstract

Data from surveys of persons with disabilities were used to estimate the proportion of disability due to work-related injuries and diseases. Studies examining the proportion of workers with work-related disabilities who received workers' compensation benefits were reviewed. Many persons with disabilities caused by work do not receive workers' compensation benefits. Legal restrictions and other factors explaining the lack of receipt of workers' compensation benefits were examined. The solution to this problem, such as providing healthcare to workers regardless of the source of injuries and diseases, are complicated and controversial, and will be difficult to implement.

The Growth in Applications for Social Security Disability Insurance: A Spillover Effect from Workers' Compensation

Xuguang (Steve) Guo and John F. Burton, Jr.
Social Security Bulletin
Vol. 72, No. 3 (2012): pp. 69-88.

The article can be downloaded without charge from www.workerscompresources.com

Abstract

The determinants of applications for Social Security Disability Insurance (DI) were examined. The data were observations for each state (approximately 45 jurisdictions, depending on the year) for each year between 1981 and 1999. The study first reproduced findings of previous studies of the determinants of DI applications. The study then tested for the additional influence of changes in workers' compensation benefits and eligibility rules on DI application rates. The findings indicate that the programs are interrelated. When benefits declined and eligibility rules tightened in workers' compensation programs in many states in the 1990s, the DI application rates in those states increased.

Workers' Compensation Insurance Industry Underwriting Results in 2011

by John F. Burton, Jr.

The underwriting results for the workers' compensation insurance industry deteriorated in 2011 but remained profitable, although barely, according to results from A.M. Best. The overall operating ratio, which is the most comprehensive measure of underwriting experience for insurance carriers, increased from 96.7 in 2010 to 99.8 in 2011, as shown in Figure A and Table 1 (column (8)).

The overall operating ratio is calculated as (1) the total of all carrier expenditures (2) minus investment income (3) as a percentage of premiums.¹ When the overall operating ratio is greater than 100, carriers lose money even when investment income is considered. (For example, when the overall operating ratio was 1.081 in 2001, workers' compensation carriers lost \$8.10 for every \$100 of premiums.) Conversely, an operating ratio of less than 100 indicates that the industry is profitable when investment income is included. (For example, when the overall operating ratio was 95.2 in 2009, workers' compensation carriers made profits of \$ 4.80 per \$100 of premiums.) The overall operating ratio of 99.8 in 2011 means that workers' compensation insurers made \$0.20 of profit per \$100 of premiums that year.

Underwriting Results Vary Over Time

The overall operating ratio for the workers' compensation industry for 1976 to 2011 is shown in Figure A and Table 1, and the cyclical nature of profitability in the industry is evident. Two years of losses in 1976-1977 were followed by six years of profits through 1983. For example, the operating ratio was below 90 in 1981 and 1982, indicating that carriers had profits that exceeded \$10 for every \$100 of premiums in those years.

The workers' compensation insurance industry was then unprofitable in every year from 1984 to 1992. During this nine-year stretch of unfavorable results, carriers' losses ranged from \$3.40 to \$8.70 for every \$100 of workers' compensation premiums. One result of this unfavorable experience is that the workers' compensation industry took the lead in "reform" efforts that reduced benefits and tightened eligibility standards in many states.² Also, because insurance regulators refused to allow insurance rates to increase as rapidly as losses in many jurisdictions, which resulted in underwriting losses in these states, workers' compensation carriers pursued and achieved deregulation of the workers' compensation insurance markets in most states.³

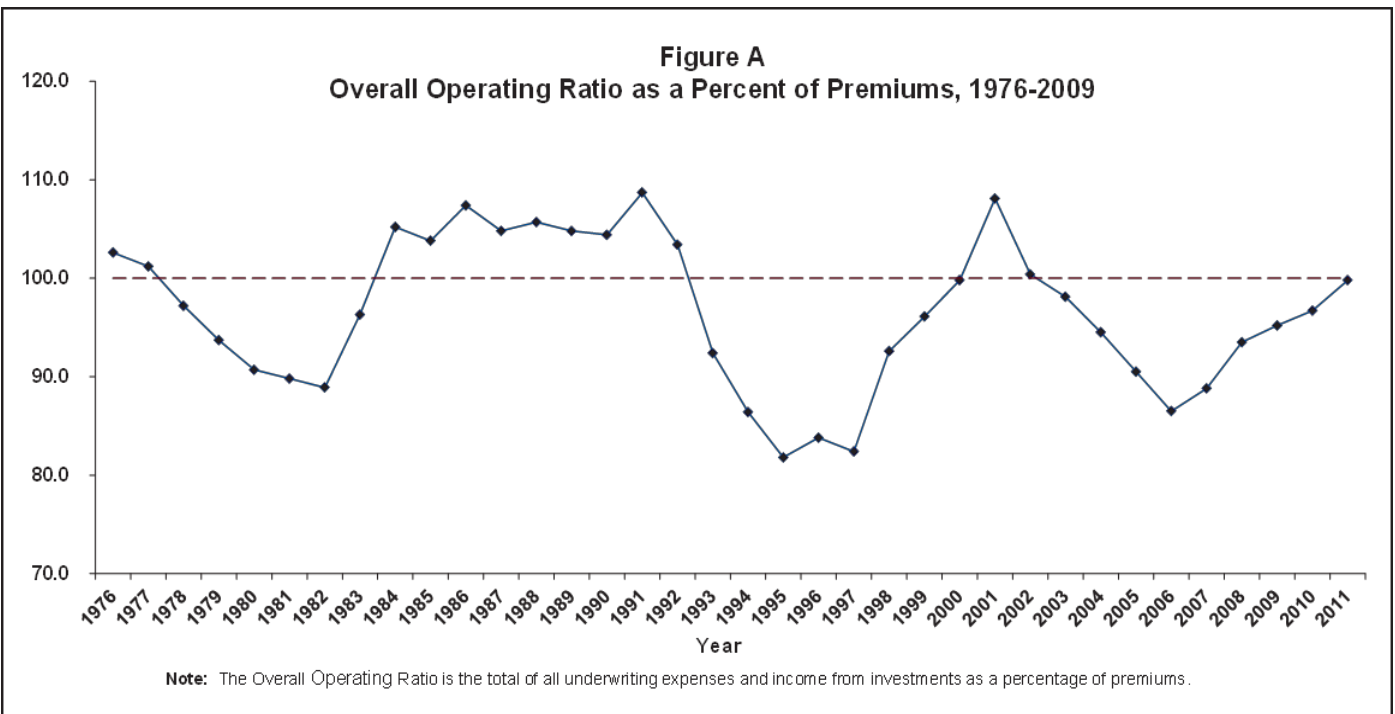


Table 1
Workers' Compensation Insurance Underwriting Experience, 1973-2011

Year	Losses Incurred*	Loss Adjustment Expenses*	Losses and Adjustment Expenses Incurred*	Underwriting Expenses Incurred**	Dividends to Policyholders*	Combined Ratio After Dividends	Net Inv. Gain/Loss and Other Income*	Overall Operating Ratio
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1973	68.5	8.5	77.0	19.8				
1974	71.6	8.7	80.3	19.6				
1975	74.0	8.2	82.2	18.9	6.3	107.4		
1976	78.2	8.4	86.6	17.6	5.4	109.6	6.9	102.6
1977	78.0	8.9	86.9	16.7	5.1	108.6	7.4	101.2
1978	74.4	8.7	83.0	16.4	5.6	105.0	7.8	97.2
1979	70.4	9.2	79.6	16.8	6.5	103.0	9.2	93.7
1980	67.6	8.4	76.1	17.4	8.0	101.4	10.8	90.7
1981	66.1	9.0	75.1	19.0	8.7	102.8	13.0	89.8
1982	64.3	9.1	73.4	20.6	9.9	103.9	15.0	88.9
1983	70.6	9.2	79.9	22.0	10.6	112.5	16.2	96.3
1984	81.0	9.8	90.8	21.2	9.9	121.9	16.7	105.2
1985	81.0	9.5	90.5	19.0	9.3	118.8	15.0	103.8
1986	85.4	10.2	95.5	18.0	7.6	121.1	13.7	107.4
1987	82.2	10.9	93.1	18.0	6.4	117.6	12.8	104.8
1988	83.4	10.8	94.2	17.8	6.4	118.4	12.7	105.7
1989	83.3	11.4	94.7	17.4	6.1	118.2	13.4	104.8
1990	83.8	10.7	94.6	17.6	5.1	117.4	13.0	104.4
1991	87.8	11.5	99.3	18.5	4.9	122.6	14.0	108.7
1992	83.9	13.2	97.1	19.8	4.6	121.5	18.1	103.4
1993	71.6	12.4	84.0	20.4	4.7	109.1	16.7	92.4
1994	60.5	13.1	73.6	21.0	7.0	101.6	15.1	86.4
1995	57.0	12.8	69.8	22.7	6.9	99.5	17.7	81.8
1996	57.5	14.5	72.1	24.9	5.4	102.4	18.6	83.8
1997	58.6	14.4	73.0	25.3	6.5	104.8	22.4	82.4
1998	62.0	16.2	78.2	26.3	6.6	111.2	18.6	92.6
1999	68.0	16.2	84.2	27.5	6.7	118.5	22.4	96.1
2000	73.5	16.0	89.5	25.8	5.4	120.7	20.9	99.8
2001	78.9	13.6	92.4	25.0	3.5	120.9	12.8	108.1
2002	74.6	12.9	87.5	22.3	2.8	112.6	12.2	100.4
2003	72.2	14.0	86.2	20.7	1.6	108.6	10.5	98.1
2004	69.7	13.4	83.1	20.8	1.3	105.1	10.6	94.5
2005	66.1	14.1	80.2	20.8	1.7	102.7	12.2	90.5
2006	60.9	13.6	74.5	22.0	2.0	98.5	12.0	86.5
2007	61.9	14.9	76.8	24.0	2.8	103.6	14.8	88.8
2008	61.9	15.0	76.9	24.5	3.2	104.6	11.1	93.5
2009	68.0	16.3	84.3	24.1	1.9	110.4	15.1	95.2
2010	71.6	15.6	87.2	26.5	2.9	116.6	19.9	96.7
2011	69.2	18.9	88.1	26.3	2.8	117.1	17.3	99.8

Source:

Best's Aggregate & Averages Property/Casualty, 2010 and prior Editions, © A.M. Best Company - used with permission. Data for years 2000 - 2011 updated to reflect values from 2012 Edition.

Notes:

Losses Incurred (also termed the pure loss ratio) (1) plus Loss Adjustment Expenses (2) equals Losses and Adjustment Expenses Incurred (3). Losses and Adjustment Expenses Incurred (3) plus Total Underwriting Expenses Incurred (4) plus Dividends to Policy Holders (5) equals Combined Ratio after Dividends (6). Combined Ratio after Dividends (6) minus Net Investment Gain/Loss and Other Income (7) equals Overall Operating Ratio (8). As of 1992, the methodology for allocating investment income changed slightly; as a result, 1992-2001 numbers in the last two columns are not directly comparable to those for earlier years.

* Percentage of net premiums earned ** Percentage of net premiums written

The results of deregulation and the various other reforms of workers' compensation in the early to mid-1990s are evident in the underwriting results for 1993 to 2000, when the overall operating ratio was less than 100 in every year. This was the longest string of profitable years for the workers' compensation insurance industry in the last half-century (and probably in the history of workers' compensation). The best years were 1995 to 1997, when on average carriers had profits of more than \$16.00 per \$100 of premium.

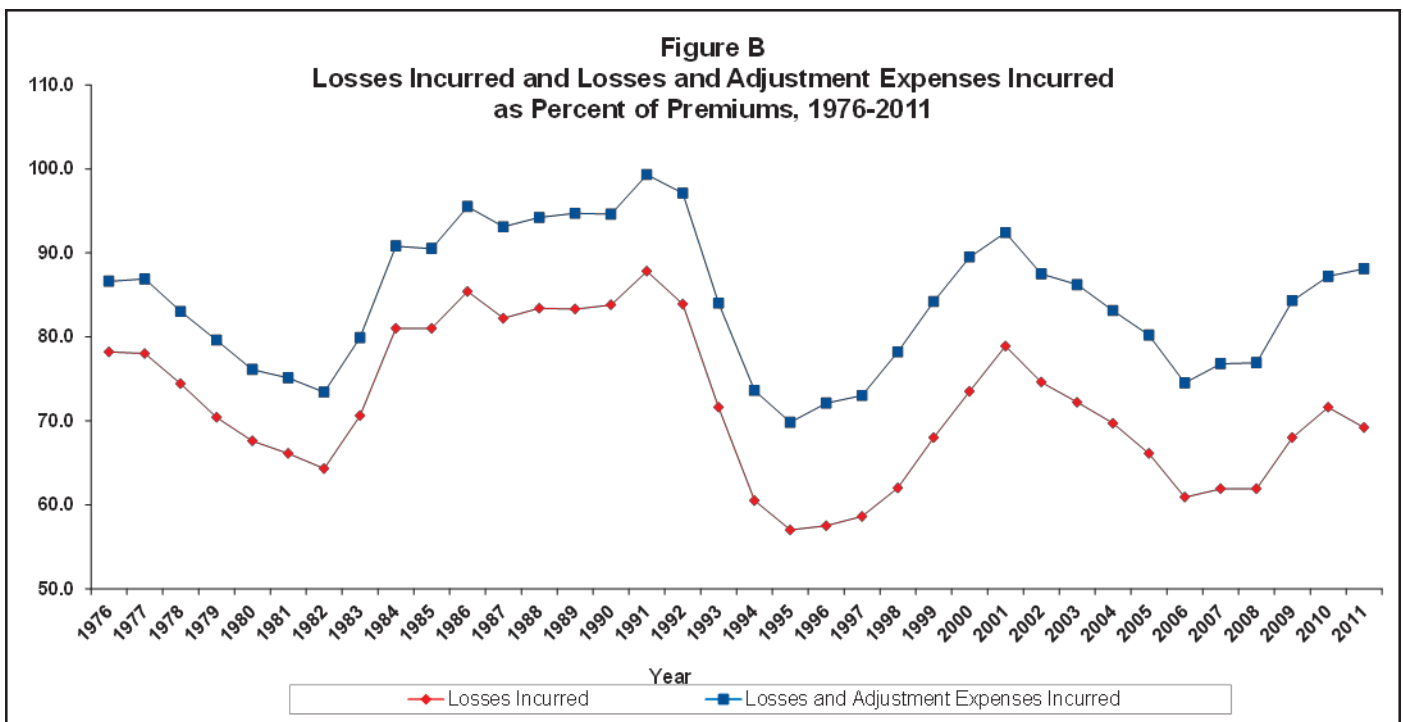
The underwriting experience of workers' compensation carriers deteriorated for several years after 1997. Indeed, between 1997 and 2001, the overall operating ratio jumped almost 26 points, which is the most rapid rate of deterioration during the period covered by the data in Figure A (namely 1976 to 2011). Moreover, the overall operating ratio of 108.1 in 2001 indicates the underwriting losses in that year were worse than in all but one other year (1991) for which data are available.

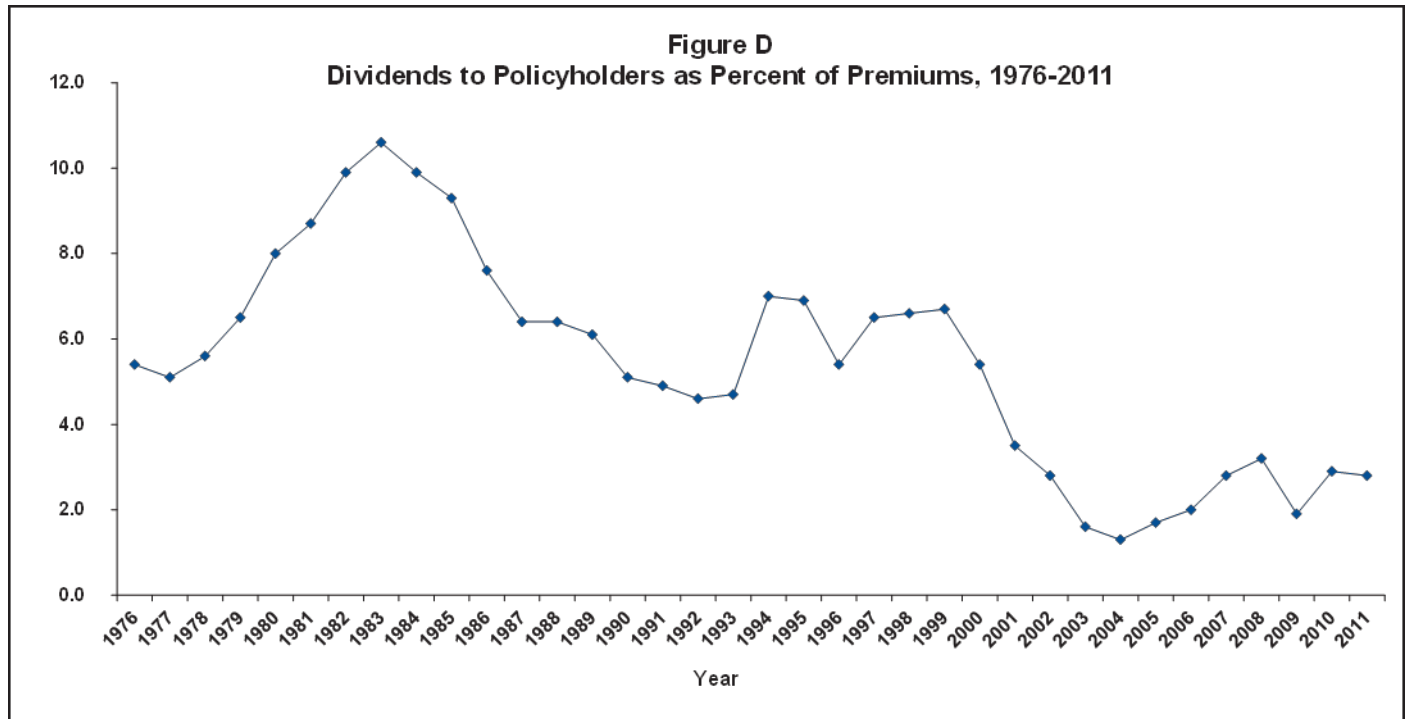
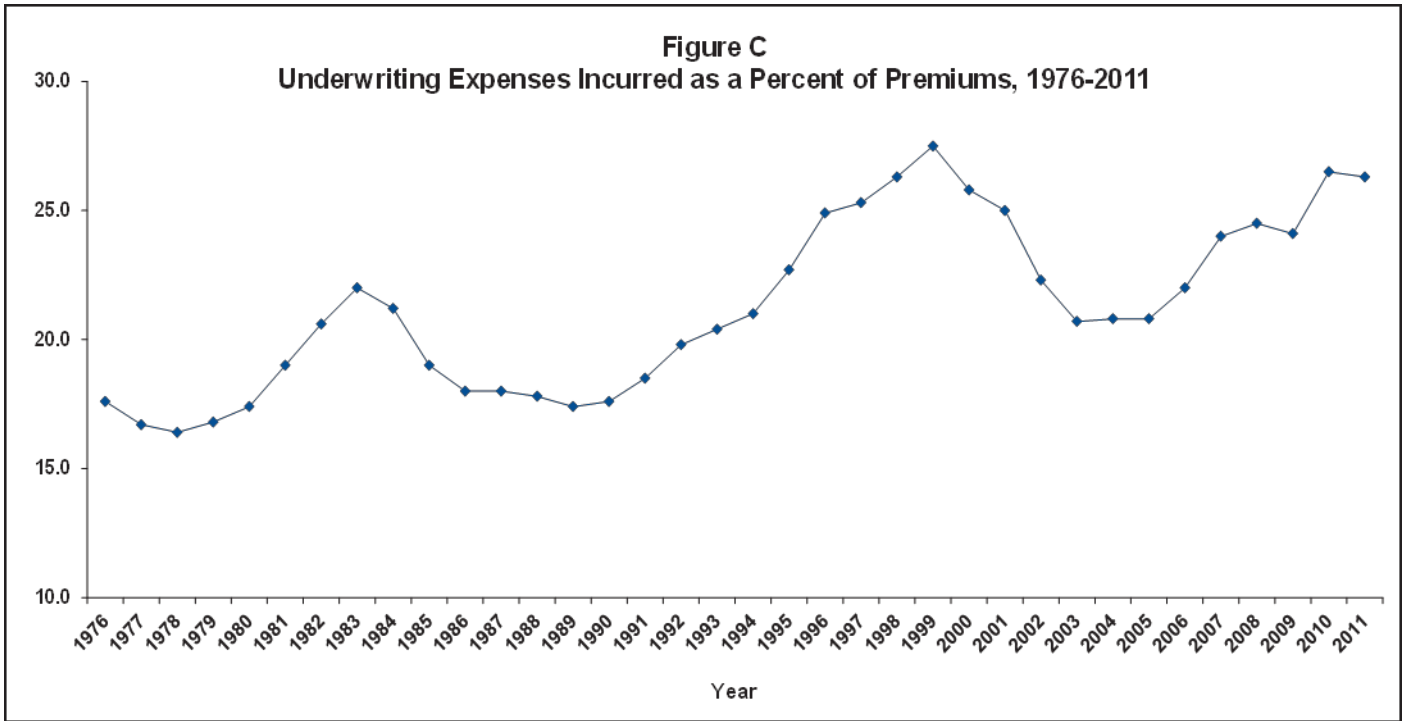
The reduction in the overall operating ratio from 108.1 in 2001 to 100.4 in 2002 brought the industry to essentially a break-even point in that year. A further decline in that ratio in 2003 to 98.1 returned the industry to a profitable position for the first time since 2000. The overall operating ratio then significantly improved 2003 to 2006, when the ratio of 86.5 for 2006 was the lowest figure, and most profitable, since 1997, as carriers had profits of \$13.50 per \$100 of premium in 2006. Most recently, profits dropped in every year from 2007 to 2011, when (as indicated above) carriers had profits of \$0.20 per \$100 of premiums.

Components of the Overall Operating Ratio

The overall operating ratio, shown in column (8) of Table 1, is a figure derived from the underwriting data for workers' compensation carriers included in columns (1) to (7) of Table 1. The loss ratio, which is incurred losses (benefits) as a percentage of premiums, is shown in column (1) of Table 1.⁴ When premiums drop more rapidly than losses (or when premiums increase less rapidly than losses), the loss ratio will increase. As shown in Figure B and Table 1 (column 1), the loss ratio increased rapidly from 58.6 percent in 1997 to 78.9 percent in 2001, then plummeted to 60.9 percent in 2006 before increasing to 71.6 percent in 2010. In 2011, the loss ratio declined modestly to 69.2 percent.

The total of incurred losses and incurred loss adjustment expenses is also shown in Figure B and in Table 1 (column 3). The difference between the two lines in Figure B is incurred loss adjustment expenses, which are also shown in Table 1 (column 2). Loss adjustment expenses include the cost of processing claims. From 1973 to 1985, loss adjustment expenses were always less than 10 percent of premium, but they have been at least 12 percent in every year since 1992. Loss adjustment expenses were 16 percent or higher in 1998 to 2000, averaged 13.8 percent in the seven years from 2001 and 2007, and then averaged 16.5 percent from 2008 to 2011, reaching a record of 18.9 percent in 2011. The higher loss adjustment expenses since the early 1990s compared to earlier years may reflect in part the more intensive efforts to manage health care costs for disabled workers.





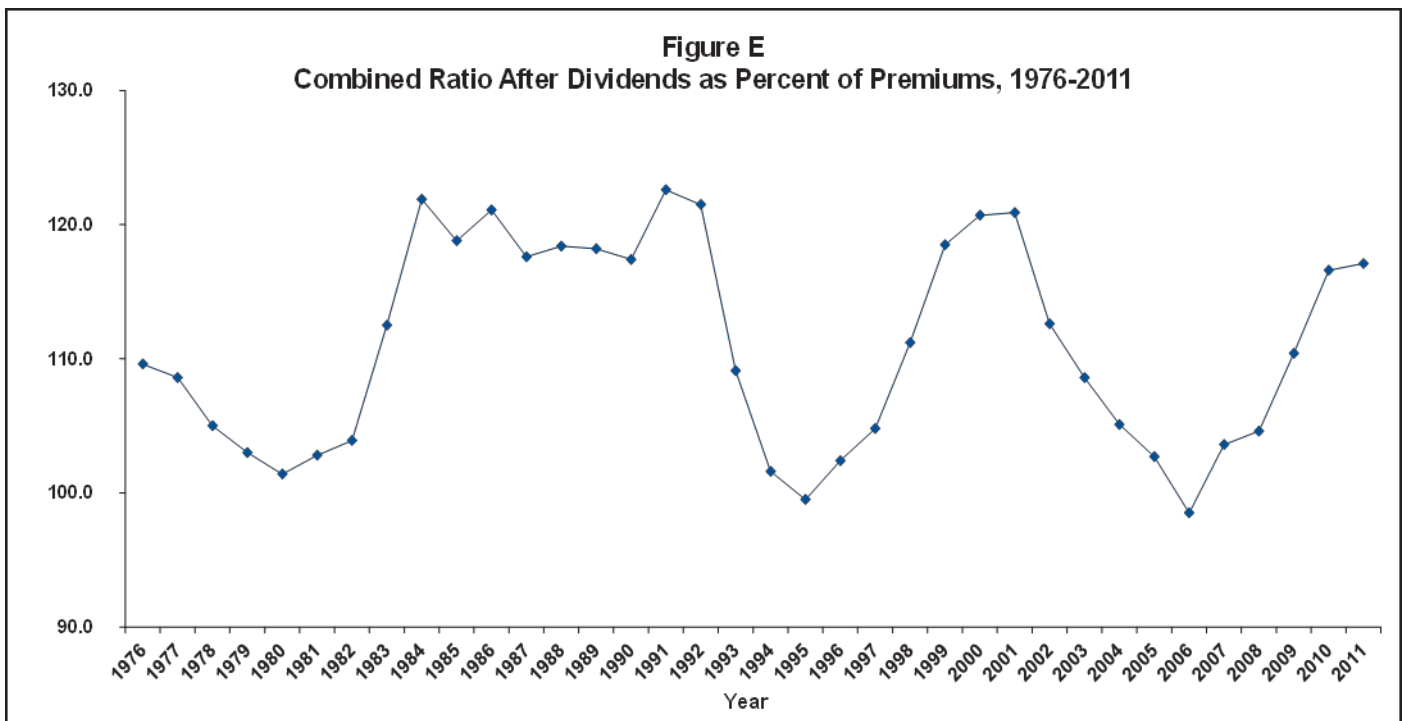
Underwriting expenses incurred as a percent of premiums are shown in Figure C and Table 1 (column 4). These expenses, which include commissions and broker fees, have also generally increased over time. Between 1973 and 1992, underwriting expenses were greater than 20 percent of premium only thrice; since 1993, underwriting expenses have been 20 percent or greater in every year. There has been fluctuations in underwriting expenses recently: after averaging 26.2 percent of premium in 1998 to 2001, underwriting expenses averaged only 21.5 percent of premiums in 2002 to 2007, and then increased to an average of 25.4 percent of premiums in 2008 to 2011.

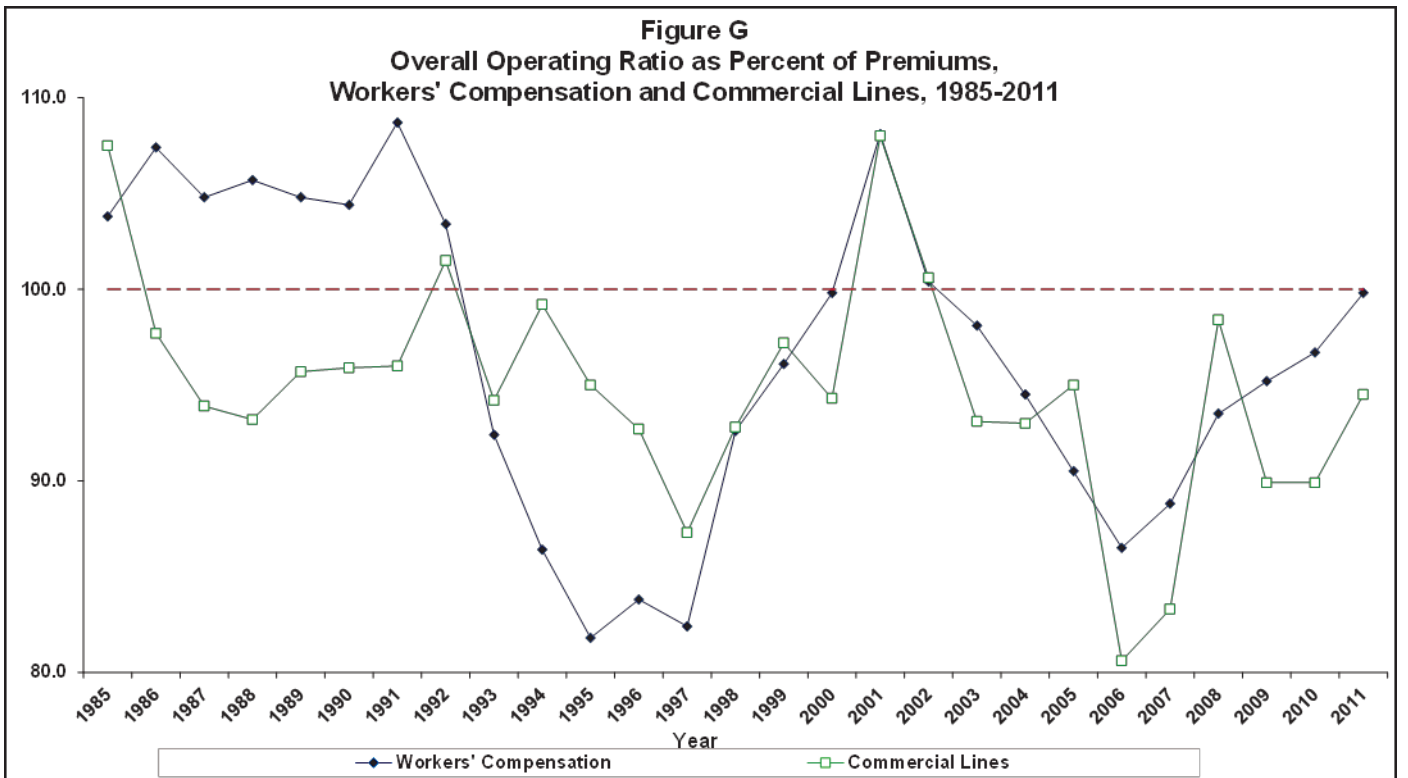
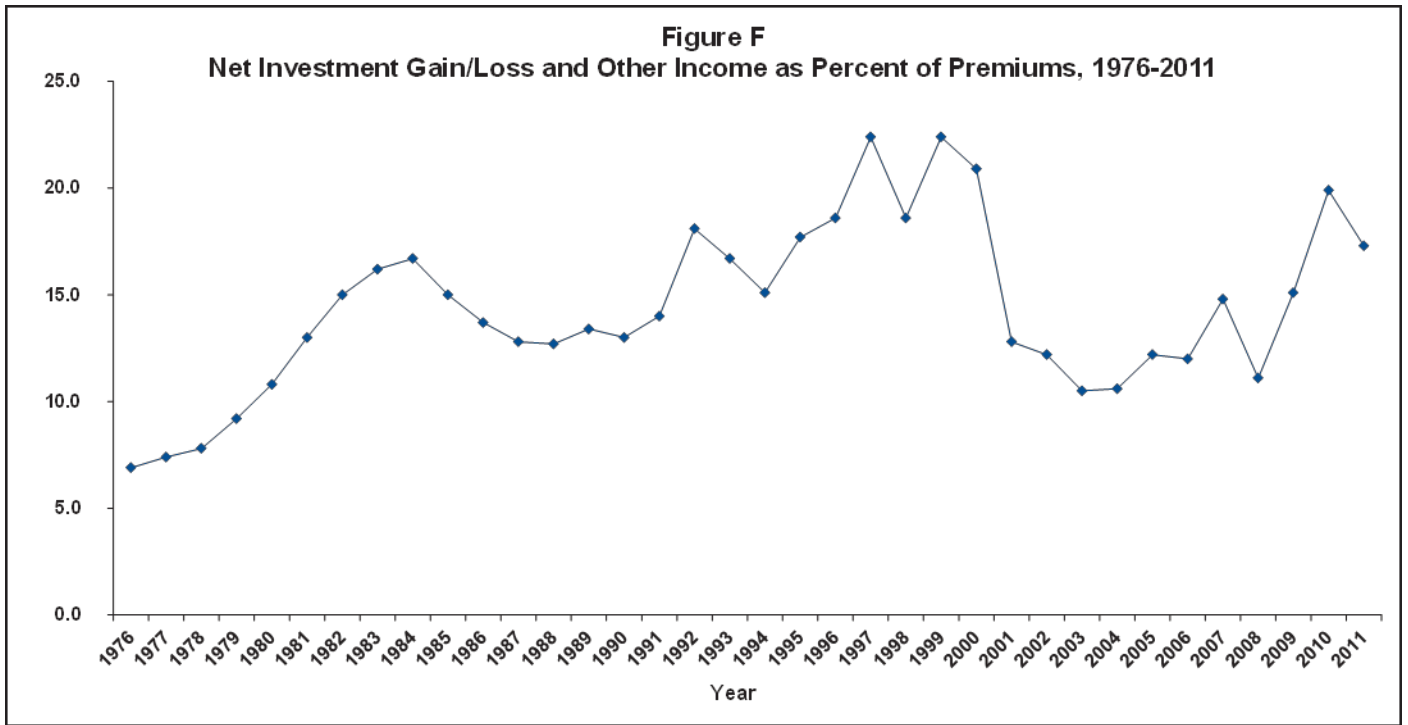
Dividends as a percent of premiums are presented in Figure D and Table 1 (column 5). Prior to deregulation of the workers' compensation insurance markets in the 1980s and 1990s, carriers were limited in their ability to compete by lowering insurance rates at the beginning of the policy period. However, both mutual and stock companies could compete by offering policies that paid dividends to policyholders after the policy period. In the early 1980s, dividends ranged from 8.0 to 10.6 percent of premiums. Since 1990, dividends have never exceeded 7.0 percent of premiums. Dividends averaged less than four percent of premiums in 2000 to 2003, reaching their lowest point in 2004 for the then 32 years of available data at a mere 1.3 percent of premiums. Since 2004 dividends have been modestly higher, but were only 2.8 percent of premiums in 2011.

The combined ratio after dividends is presented in Figure E and Table 1 (column 6). The combined ratio is

the sum of the loss ratio (column 1), loss adjustment expenses (column 2), underwriting expenses (column 4), and dividends (column 5). When the combined ratio exceeds 100 percent, premiums are not adequate to cover losses and expenses. As shown in Figure E, the combined ratio exceeded 100 percent in every year between 1975 and 1994, and was greater than 110 percent in every year from 1983 to 1992. The combined ratio then dropped sharply after 1992 until reaching a low of 99.5 in 1995. The combined ratio deteriorated (increased) in every year between 1995 and 2001, reaching 120.9 percent in 2001 and averaging nearly 118 percent in 1998 to 2001. Restated, for every \$100 of premiums received by workers' compensation carriers in 1998 to 2001, there was an average of almost \$118 of losses, loss adjustment expenses, underwriting expenses, and dividends. The combined ratio then dropped sharply for five years before reaching 98.5 in 2006, which is the lowest figure for that measure of underwriting experience in the 37 years with data in Table 1. The combined ratio then increased in every year between 2007 and 2011, when it stood at 117.1 percent of premium.

The combined ratio after dividends is sometimes used as a measure of the underwriting experience of the workers' compensation insurance market, but it represents an incomplete and potentially misleading record of the profitability of insurance carriers because no account is taken of investment gains (or losses) and other income received by workers' compensation carriers. Net investment gains (or losses) and other income as a percent of premium ("net investment income") are





shown in Figure F and Table 1 (column 7).⁵ From 1981 to 2002, net investment income was at least 12 percent of premium in every year. Net investment income dropped below 12 percent to 10.5 percent in 2003 and to 10.6 percent in 2004, which were the lowest rates since 1979. However, in the seven years from 2005 to 2011, net investment income as a percent of premium averaged 14.6 percent, with the highest years being 2010 (19.9 percent) and 2011 (17.3 percent).

Table 2
Underwriting Experience, Workers' Compensation and Commercial Lines, 1991-2011

Year	Overall Operating Ratio- Workers' Compensation	Overall Operating Ratio- Commercial Lines
1976	102.6	
1977	101.2	
1978	97.2	
1979	93.7	
1980	90.7	
1981	89.8	
1982	88.9	
1983	96.3	
1984	105.2	
1985	103.8	107.5
1986	107.4	97.7
1987	104.8	93.9
1988	105.7	93.2
1989	104.8	95.7
1990	104.4	95.9
1991	108.7	96.0
1992	103.4	101.5
1993	92.4	94.2
1994	86.4	99.2
1995	81.8	95.0
1996	83.8	92.7
1997	82.4	87.3
1998	92.6	92.8
1999	96.1	97.2
2000	99.8	94.3
2001	108.1	108.0
2002	100.4	100.6
2003	98.1	93.1
2004	94.5	93.0
2005	90.5	95.0
2006	86.5	80.6
2007	88.8	83.3
2008	93.5	98.4
2009	95.2	89.9
2010	96.7	89.9
2011	99.8	94.5

Source:

Best's Aggregate & Averages Property/Casualty, 2010 and prior Editions, © A.M. Best Company - used with permission. Data for years 2000 - 2011 updated to reflect values from 2012 Edition.

Notes:

The Overall Operating Ratio is the total of all underwriting expenses and income from investments as a percentage of premiums.
"Commercial Lines" includes all insurance lines except passenger auto and homeowner multiples peril insurance.

The results for 2011 illustrate why underwriting results that only focus on the combined ratio after dividends are misleading. In that year, the combined ratio was 117.1, which means that for every \$100 of premiums, there was a total of \$117.10 of losses, loss adjustment expenses, underwriting expenses, and dividends. However, in 2011 net investment income was 17.3 percent of premiums, which means that the insurance industry had investment income of \$17.30 for every \$100 of premiums. When the net investment income ratio is subtracted from the combined ratio, the overall operating ratio for 2011 was 99.8 which – as discussed earlier in this article – means that the industry had \$0.20 profit for each \$100 of premiums in 2011. I do not want to suggest that \$0.20 per \$100 of premium is an adequate return for the workers' compensation insurance industry, but focusing on the overall operating ratio – and not the combined ratio after dividends -- should be the starting point for assessing the profitability of the workers' compensation insurance industry.

Comparison to Other Insurance Lines

The overall operating ratio of workers' compensation is compared to all commercial lines of insurance for 1985 to 2011 in Figure G and Table 2. The comparison reinforces the impression of the volatility of the underwriting results in the workers' compensation insurance industry. The workers' compensation industry had smaller losses (a lower operating ratio) than other commercial lines in 1985; workers' compensation had losses (overall operating ratios were in excess of 100) while other commercial lines were profitable (overall operating ratios were less than 100) from 1986 until 1991; workers' compensation had greater losses than other commercial lines in 1992; workers' compensation was more profitable (a lower overall operating ratio) than other lines from 1993 to 1999; workers' compensation was profitable but less so than other lines in 2000; workers' compensation had losses that slightly exceeded those in other commercial lines in 2001; and workers' compensation had losses that were slightly lower than the losses in other commercial lines in 2002.

For the period between 2003 and 2011, both workers' compensation and all commercial lines of insurance have been profitable (with overall operating ratios below 100). In some years (such as 2008), workers' compensation was more profitable than all commercial lines; in other years (including 2009 to 2011), workers' compensation insurance was less profitable. While I have not conducted a statistical analysis of the relative performance of workers' compensation carriers versus all-commercial line carriers, there is no obvious difference in profitability between the two segments of the insurance markets in recent decades.

Underwriting Results in the Context of National Developments in Workers' Compensation Benefits and Costs

A full explanation of the variations in the underwriting experience of workers' compensation insurance carriers between 1976 and 2011 shown in Figure A and Table 1 is beyond the scope of this article. However, there are important differences among three periods in which the overall operating ratio was increasing and/or was greater than 100: (1) the adverse experience between 1982 and 1992, when profitability declined in 1983 and then private carriers were unprofitable for nine years, (2) the adverse experience between 1997 to 2001, when the overall operating ratio deteriorated between 1997 and 2000 and the industry was unprofitable in 2001, and (3) the decline in profitability between 2006 and 2010.

The importance differences among these three periods of adverse underwriting experience relate to the context of national developments in workers' compensation benefits and costs as a percent of payroll, which are shown in Figure H and Table 3. There are several differences between the underwriting data and the data on benefits and costs. The underwriting data in Figure A and Table 1 are available for 1976 to 2011, while the

data on benefits and costs are available from 1960 to 2010, and so the overlapping years are from 1976 to 2010. The data on benefits and costs in Figure H and Table 3 pertain to all employers, including those who self-insure their risks and those who buy insurance from state insurance funds, while the underwriting data in Figure A and Table 1 pertain to private insurance carriers, and so the two sets of data are not entirely comparable. However, benefits paid by private carriers accounted for over 50 percent of all workers' compensation benefits in all but two years between 1976 and 2010 (Sengupta, Reno, Burton, and Baldwin 2012, Table 4), and so the comparisons of the two sets of data provide at least a rough basis for understanding the differences among the three periods.

Period One: 1982 – 1992. The overall operating ratio (the preferable measure of insurance industry profitability) increased rapidly from 88.9 in 1982 to 105.2 in 1984 and then remained above 100 until 1992. During this period, benefits increased from \$1.04 per \$100 of payroll in 1982 to \$1.65 in per \$100 of payroll in 1991 and 1992. In essence, the adverse underwriting experience during Period One was associated with significant increases in payment of workers' compensation benefits.

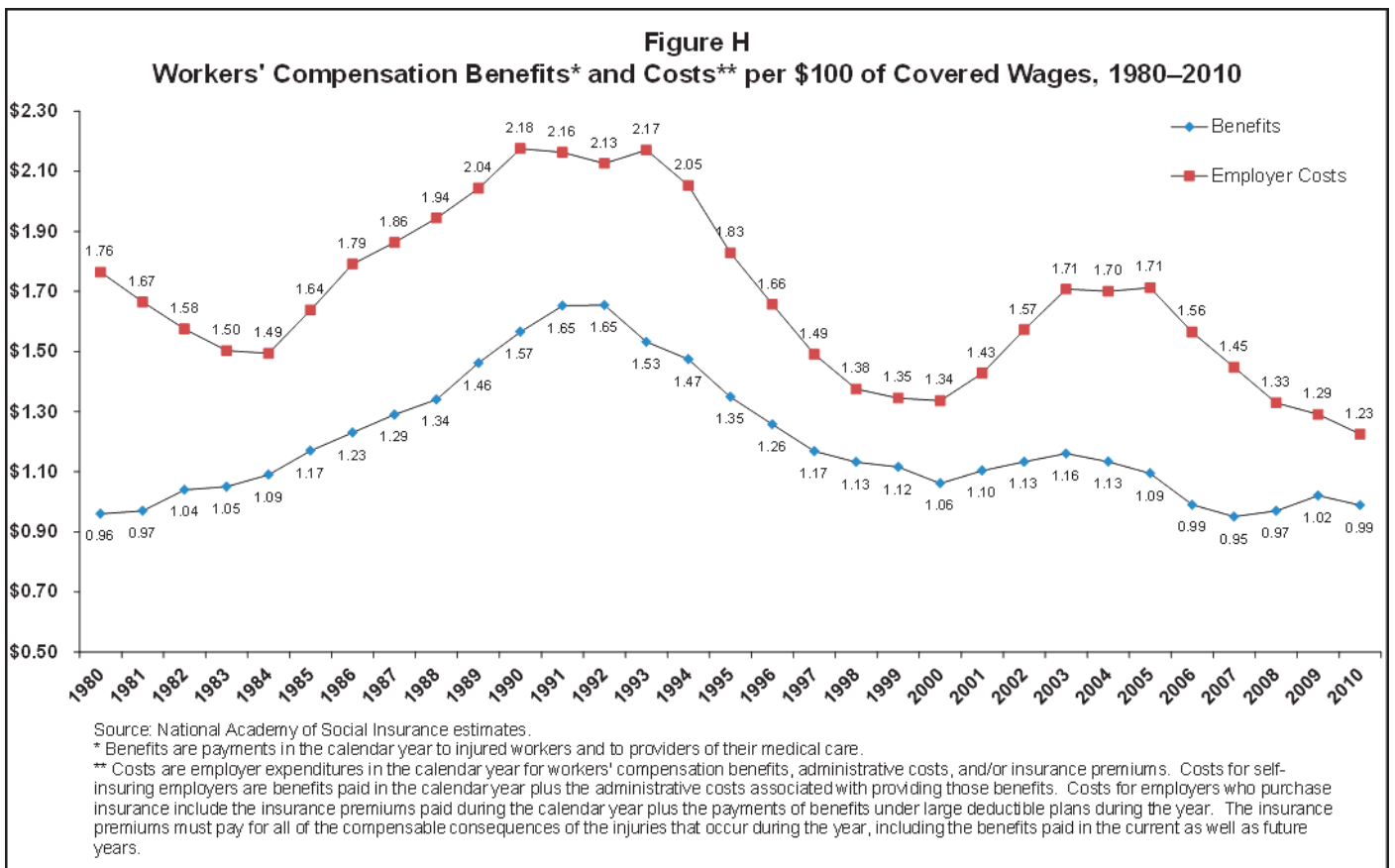


Table 3
Workers' Compensation Benefit* and Cost**
Ratios, 1980–2010

Year	Employer Costs per \$100 of Wages	Benefits per \$100 of Wages
1980	\$1.76	\$0.96
1981	1.67	0.97
1982	1.58	1.04
1983	1.50	1.05
1984	1.49	1.09
1985	1.64	1.17
1986	1.79	1.23
1987	1.86	1.29
1988	1.94	1.34
1989	2.04	1.46
1990	2.18	1.57
1991	2.16	1.65
1992	2.13	1.65
1993	2.17	1.53
1994	2.05	1.47
1995	1.83	1.35
1996	1.66	1.26
1997	1.49	1.17
1998	1.38	1.13
1999	1.35	1.12
2000	1.34	1.06
2001	1.43	1.10
2002	1.57	1.13
2003	1.71	1.16
2004	1.70	1.13
2005	1.71	1.09
2006	1.56	0.99
2007	1.45	0.95
2008	1.33	0.97
2009	1.29	1.02
2010	1.23	0.99

* Benefits are payments in the calendar year to injured workers and to providers of their medical care.

** Costs are employer expenditures in the calendar year for workers' compensation benefits, administrative costs, and/or insurance premiums. Costs for self-insuring employers are benefits paid in the calendar year plus the administrative costs associated with providing those benefits. Costs for employers who purchase insurance include the insurance premiums paid during the calendar year plus the payments of benefits under large deductible plans during the year. The insurance premiums must pay for all of the compensable consequences of the injuries that occur during the year, including the benefits paid in the current as well as future years.

Source: Sangupta, Reno, Burton and Baldwin. (2012, Table 14).

Period Two: 1997 – 2001. The overall operating ratio increased rapidly from 82.4 in 1997 to 108.1 in 2001. During this period, benefits declined from \$1.17 per \$100 of payroll in 1997 to \$1.10 per \$100 of payroll in 2001. In essence, the adverse underwriting experience during Period Two was associated with a modest decline in the payment of workers' compensation benefits.

Period Three: 2006-2010. The overall operating ratio increased from 86.5 in 2006 to 96.7 in 2010. During this period, benefits were \$0.99 per \$100 of payroll in 2006, and, after fluctuations in the next several years, ended at \$0.99 per \$100 of payroll in 2011. In essence, although the workers' compensation insurance industry was profitable in every year between 2006 and 2011, the profitability was declining during Period Three even though benefits paid to workers were stable.

Comments

The contrasts among the three periods of adverse underwriting experience are informative about efforts to reform workers' compensation programs in order to bring benefits and premiums into a rough balance that provides an adequate but not excessive rate of return for private carriers providing workers' compensation insurance. The deterioration in underwriting results in Period One between 1982 to 1992 was associated with increases in benefits paid to workers and so the previously discussed reforms to cut benefits and constrict eligibility for benefits are easier to understand (although Spieler and Burton (2012) argue that many of the changes were disproportionate to the problem.)

The deterioration in underwriting results in the two most recent periods have a different cause: benefits were declining in Period Two or stable in Period Three, suggesting that the deteriorating underwriting results in these periods were not caused by high benefit payments but by premiums that were too low. In turn, there appears to be little justification for additional cuts in benefits or tightening of compensability rules as a solution to the recent deterioration in the underwriting experience of workers' compensation carriers.

END NOTES

¹ More complete definitions of the overall operating ratio are provided subsequently in the text and in the notes to Table 1.

² The reform efforts are examined in Spieler and Burton (2012).

³ The deregulation of the workers' compensation insurance market is examined in Thomason, Schmidle, and Burton (2001: 39-43).

⁴ Incurred losses include paid losses plus reserves for future losses for injuries or diseases that have already occurred. An extended discussion of insurance terminology is included in Thomason, Schmidle, and Burton (2001, Appendix B).

⁵ Net investment income does not include realized or unrealized capital gains (Best 2008: 34).

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