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Historical Perspective

Variations in Worker Compensation Claims by Company—The Potential for Achieving a Significant Reduction in Claims

Kenneth D. Rosenman, MD,* Alice Kalush, MS, and Mary Jo Reilly, MS

Background *The objective of our study was to examine the potential reduction in paid worker compensation claims if the rate of claims were as low as the rates of the top companies in that industry category.*

Methods *Using Michigan data for the years 1999–2001, we first excluded companies who had no paid worker compensation claims for wage replacement and then calculated the top 10th, 25th, and 50th percentile rates of paid worker compensation claims for wage replacement of all the remaining companies combined and by 2 digit SIC. The percent reduction was calculated separately for small (<20 employees) and large companies based on the differences in observed minus expected if all companies did as well as the top companies in their industry grouping.*

Results *Fifty-nine percent of large companies and 90% of small companies had no paid worker compensation claims for wage replacement over the 3-year period. Controlling for industry type there would have been 91,504 fewer paid workers' compensation claims if all companies with at least one claim did as well as the 10th percentile or better as the companies in their industry grouping. Reductions were found across all industries and for both small and large companies.*

Conclusion *Variations in worker compensation claims between states are highlighted when legislators consider "reforms" to reduce workers' compensation costs. These reforms overlook the larger variation between companies within the same type of industry in the same state. Possible reasons for this variation between companies and its implication on reducing morbidity and health care costs are discussed.* Am. J. Ind. Med. 50:415–420, 2007. © *2007 Wiley-Liss, Inc.*

KEY WORDS: workers' compensation; injuries and illnesses; prevention

INTRODUCTION

Despite a decrease in the number of Workers' Compensation claims in Michigan since 1999, workers' compensation costs have remained approximately $1.5 billion per year [Sengupta et al., 2005]. The rate of workers' compensation claims and associated costs varies by industry, as some industries are more hazardous than others (e.g., foundry vs. accounting firm) and by state because of a different mix of industries in different states and differences in the level of

Michigan State University, 117 West Fee Hall, East Lansing, Mishigan

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*Correspondence to: Kenneth D. Rosenman, Michigan State University, 117 West Fee Hall, East Lansing, MI 48824. E-mail: Rosenman@msu.edu

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benefits, and legal requirements between states (e.g., differences in minimum days off work required to be eligible for salary replacement). However, even within the same industry in the same state some companies have appreciably lower workers' compensation claims and costs than other companies, which do the same kind of work.

This article examines the potential reduction in workers' compensation claims in Michigan in 1999, 2000, and 2001 if each company within a given industry grouping performed as well (i.e., lower rate of claims) as the top 10% of companies in that industry. This analysis is a variation of a similar analysis conducted on Ontario data [Shannon and Vidmar, 2004].

METHODS

A file of all workers' compensation claims that paid for 7 or more days away from work for the years 1999, 2000, and 2001 was obtained from the Michigan Bureau of Workers' Compensation. Seven is the minimum number of days a worker must be away from work with a workplace injury or illness to be eligible for wage replacement from workers' compensation in Michigan.

We used the number of paid claims for all analyses. No analyses on the dollar amount of claims were conducted, as information on the dollar amount of claims was not available to us.

The Standardized Industrial Classification Code (SIC) and number of employees were obtained from the Michigan Employment Security Commission for all Michigan companies for the same years. Michigan employers are required to have workers' compensation if they employ three or more employees and therefore companies with fewer than three employees were excluded from the analysis. The workers' compensation and SIC files were matched to construct a single database for each year. The combined files included company, industry type, a unique company identifier, the number of paid workers' compensation claims, and the number of employees. Only companies that paid at least one claim during the three years were included in the analysis.

The rate of paid workers' compensation claims was calculated by dividing the number of paid claims by the number of employees in each company for 1999, 2000, and 2001. The 10th percentile rate of workers' compensation claims for all companies within each 2 digit SIC was calculated. The expected number of compensation claims was then calculated for each company whose rate was greater than the 10th percentile by multiplying the 10th percentile rate for the SIC by the number of employees in each company. The observed number of compensation claims was used as the expected for companies whose rate was better (lower) than the 10th percentile rate. The potential percentage reduction in paid workers' compensation claims if all companies had claims equal to or better than the 10th percentile rate for companies with the lowest claim rates in their industry type was calculated by subtracting the number of expected paid claims from the number of observed paid claims divided by the observed number of paid claims, multiplied by 100 within each SIC. This calculation was done separately for companies with less than 20 employees and those with 20 or more employees. Since small sized companies have higher injury rates, we needed to control for company size in our analyses. The choice of a cutoff of 20 employees was arbitrary. We used 20 employees as the cutoff between large and small employers because we wished to be able to compare our results with the previous study conducted in Ontario which had used 20 employees as the cutoff [Shannon and Vidmar, 2004].

This same calculation was repeated for the 25th and 50th percentile paid workers' compensation claim rates.

Linear regression was performed for all companies greater than 20 employees with the number of employees as the independent variable and a company's rate minus the 10th percentile rate for that company's SIC as the dependent variable.

RESULTS

From 1999 to 2001, there were 127,508 claims paid for wage replacement for lost time of 7 days or more in 47,644 companies in Michigan. Sixteen percent of the claims paid were in companies with less than 20 employees.

Table I shows that the number of claims paid would be reduced by 75% if companies with 20 or more employees did as well as the top 10th percentile of companies in the same SIC, reduced by 56% if companies did as well as the top 25th percentile and reduced by 33% if companies did as well as the top 50th percentile.

Table II shows the results for companies with less than 20 employees. The reductions are similar to the larger companies although the reductions were smaller at the 10th and 25th percentiles.

Results for the individual industries with the largest number of companies with paid worker compensation claims are also shown in Tables I and II. Manufacturers of transportation equipment, and retail trade had the highest potential for reductions among the larger companies. Printing, motor freight transportation, business, and food services had the highest potential for reductions among the smaller companies.

Company size was correlated with worker compensation rate. The rate decreased with company size ($B = -0.058$, $P = 0.000$), but the R^2 was very small 0.003.

DISCUSSION

If all companies did as well as the top 10% of companies in their industry category then there would have been

TABLE I. Percentage of Companies with No Paid Workers' Compensation Claims and Number of Paid and Mean/Median Rate per 100 Employees and Percent Reduction in Paid Worker Compensation Claims if Companies had Claims Equivalent to the top 10th, 25th, and 50th Percentile for Companies with >20 employees by Industry (2 Digit SIC), Michigan 1999–2001

Industry (SIC)[a]	Number of companies	% No claims	Number of paid workers' comp claims	Mean/median[b] rate per 100 employees	Percentile		
					10th (%)	25th (%)	50th (%)
Construction							
Special trades (17)	1,584	25	5,629	4.8/3.9	62	44	28
Manufacturing							
Rubber and plastics (30)	539	40	2,307	2.7/1.9	76	55	31
Fabricated metal (34)	1,180	31	5,601	3.3/2.5	71	50	31
Industrial and commercial mach. (35)	1,563	40	4,274	3.2/2.5	67	49	31
Transportation equipment (37)	597	36	12,160	4.2/1.5	89	75	53
Transportation							
Motor freight transportation and warehousing (42)	625	33	3,457	5.3/3.6	74	56	40
Wholesale trade							
Durable goods (50)	1,891	59	2,728	3.3/2.6	68	49	28
Non-durable goods (51)	876	52	2,764	3.2/2.5	78	63	44
Retail trade							
General merchandise (53)	716	63	2,379	1.4/0.7	87	80	68
Food stores (54)	1,199	60	1,836	2.8/1.9	69	51	33
Automotive dealer & gasoline stations (55)	1,083	48	1,559	2.8/2.2	58	43	25
Eating and drinking (58)	4,745	73	2,920	2.5/2.1	69	43	24
Miscellaneous retail (59)	1,308	81	851	2.7/1.9	77	50	28
Depository institutions (60)	609	84	344	1.9/1.5	80	58	19
Services							
Business (73)	2,445	63	5,789	3.1/1.6	82	63	38
Amusement and recreation services (79)	753	72	899	2.7/2.2	67	49	28
Health (80)	2,031	60	8,038	2.2/1.4	72	53	31
Educational (82)	2,715	78	5,490	2.7/1.1	72	53	34
Social services (83)	975	56	1,778	2.6/1.7	69	48	30
Membership organizations (87)	1,163	75	1,183	2.9/1.8	80	66	45
Public organizations							
Executive, legislative, and general (91)	523	24	4,759	2.7/2.1	64	43	19
Total[c]	39,213	59	106,872	3.2/2.2	75	56	33

[a]Results of individual SICs are only shown for SICs with 500 or more companies.
[b]Mean/median rate is calculated only for companies with at least one paid claim, the employees of companies without paid claims are not included in the denominator.
[c]The total includes all SICs.

TABLE II. Percentage of Companies with No Paid Workers' Compensation Claims and Number of Paid Workers' Compensation Claims And Percent Reduction in Paid Worker Compensation Claims if Companies had Claims Equivalent to the top 10th, 25th, and 50th Percentile for Companies with >3 to <20 employees by Industry (2 Digit SIC), Michigan1999–2001

Industry (SIC)[a]	Number of companies	% No claims	Number of paid workers' comp claims	10th (%)	25th (%)	50th (%)
Agriculture						
Agriculture services (07)	2,327	85	450	50	38	22
Construction						
Building (15)	4,062	76	1,438	53	39	20
Special trades (17)	9,368	74	4,502	52	36	22
Manufacturing						
Printing, publishing (27)	1,022	94	139	67	62	50
Fabricated metal (34)	1,025	76	466	55	51	39
Industrial and commercial mach. (35)	2,363	82	610	44	39	25
Transportation						
Motor freight (42)	1,595	77	1,010	69	62	50
Wholesale trade						
Durable (50)	6,280	89	967	47	38	26
Non-durable goods (51)	2,343	88	514	61	55	42
Retail trade						
Building materials, hardware, garden supply (52)	1,505	87	278	45	36	23
Food stores (54)	3,099	93	505	73	69	58
Automotive dealers and gasoline service stations (55)	4,201	92	478	54	44	30
Apparel and accessory stores (56)	2,352	97	69	47	38	16
Home furniture, furnishing store (57)	1,955	90	250	49	37	19
Eating and drinking (58)	8,011	93	782	49	38	26
Miscellaneous retail (59)	6,416	96	337	51	37	21
Finance, insurance, retail						
Depository institutions (60)	1,995	98	38	44	36	22
Real estate (65)	2,661	91	352	54	38	24
Services						
Personal services (72)	3,487	95	205	51	39	20
Business (73)	5,307	91	1,083	65	57	46
Automotive repair (75)	3,850	86	711	50	35	18
Miscellaneous repair services (76)	1,089	87	212	48	39	24
Amusement and recreation (79)	1,618	93	164	48	40	30
Health (80)	9,395	97	495	61	49	37
Legal (81)	1,907	97	55	53	40	24
Social (83)	2,681	94	291	54	44	31
Membership organizations (86)	2,110	95	236	57	50	34
Engineering, accounting, research (87)	3,916	96	245	49	37	26
Non-classifiable (99)	2,799	93	316	58	51	31
Total[b]	115,312	90	20,636	55	45	31

[a]Results of individual SICs are only shown for SICs with 1000 or more companies.
[b]The total includes all SICs.

91,504 fewer lost time workers' compensation claims paid in 1999–2001 in Michigan. This is a 75% reduction for companies with 20 or more employees and 55% reduction for companies with less than 20 employees. Even if all companies only did as well as the top 50th percentile of companies in their industry category, the reduction would still be substantial although less, 41,665. This is a 33% reduction for larger companies and 31% reduction for smaller companies. All these percent reductions were calculated excluding the 59% of larger companies and 90% of the smaller companies with no claims in the 3-year period.

A study in Ontario on workers' compensation data from 1998 to 2001 found a smaller reduction of 60% [Shannon and Vidmar, 2004]. The methodology used in the Ontario study differed from the approach we used. Shannon and Vidmar calculated the expected at the different percentiles as if all companies had that exact rate for that percentile (including companies with better (lower) rates). If we had used the exact same methodology as that used in the Ontario study, we would have found a smaller reduction of 58% in worker compensation paid claims but almost exactly the same as that reported in the Ontario study.

The reason for less reduction using the Ontario methodology is that companies that are doing better than the selected percentile rate are calculated to have a worker compensation paid claim experience equivalent to the selected percentile, which is worse than the rate that is actually occurring. We believe it makes more sense to calculate the reduction if the companies with the worse experience did better and assume the companies with the lower rates maintained those lower rates. Our approach also allows us to calculate reductions at a higher percentile such as the 50th percentile which might be a more realistic target than the lower 10th percentile rate. With the Ontario methodology, higher percentile rates such as 50% could not be used because if all companies performed at the 50th percentile rate the number of workers' compensation claims would increase not decrease. This is because there were enough companies with a large enough number of employees with lower claim rates that using a percentile rate of 50% would increase the expected above the actual claims observed.

In 2000, workers' compensation benefits as a percent of covered wages varied from 0.52 to 3.96%, averaging 1.04% among all states [Sengupta et al., 2005]. This compares to variation in the median rate of claims from 0.11 to 8.1 per 100 employees between industries in Michigan, and 0 to 292 claims per 100 employees between companies with 20 or more employees in the same SIC. Although an increasing number of employers was associated with a decreasing rate of paid workers' compensation claims for wage replacement, the percentage of the difference (0.3%) explained by the number of employees was of no practical importance.

There are multiple reasons why companies in the same industry category may have lower paid workers' compensation claims: (1) a company may have a lower injury and illness rate; (2) a company may manage injuries and illnesses differently by allowing/encouraging/requiring employees to return to work with accommodations prior to the minimum 7 day requirement needed to be eligible for a lost work time claim; (3) a company's policy may decrease paid workers' compensation claims for lost work time by encouraging the inappropriate use of health insurance, contesting legitimate workers' compensation claims, or other policies that discourage the filing of workers' compensation claims.

A study of Michigan workers' compensation claim data from 1986 for companies with 50 or more employees found a 10-fold range in claims incidence by companies within the same SIC [Habeck et al., 1991]. A follow-up survey of 124 firms from four industries with high and low claims found that low claim companies were more likely to have activity to promote employee health, to use modified duty, to involve the supervisor in return to work practices, and to provide work incentives such as profit sharing. The limitations of this study included only a 43% response rate on the follow-up survey and that the data were self-reported [Habeck et al., 1991].

Further work at the individual company level is needed to determine what percentage of the difference between companies can be attributed to the three possible reasons outlined above. Ideally, one could identify primary prevention strategies that could be adopted by companies with the higher workers' compensation claim rates. If primary prevention was not feasible, then potentially secondary prevention to better treat and manage injured workers could be adopted by the companies with the higher rates [ACOEM, 2006]. The third approach, which involves shifting of costs rather than primary or secondary prevention, would be activity that one would want to discourage/eliminate.

There are three main limitations to the data. Companies with no paid workers' compensation claims for lost work time were not included in calculating the percentiles. Fifty-nine percent of the larger companies and 90% of the smaller companies had no paid workers' compensation claims. Inclusion of companies with no claims would increase the number of claims that could be prevented because for many industries, particularly for small companies, no claims would be expected if all companies did as well as the top 10% of companies in that industry.

A second limitation is that claims for medical care only without lost work time or where there were less than 7 days off in a row were not included in the analysis since these claims are not computerized and could not be accessed. To obtain a complete picture of workers' compensation costs as well as to evaluate whether some of the differences in workers' compensation claims for lost time between companies are secondary to programs to accommodate injured workers one would also need to evaluate differences in workers' compensation claims paid for medical costs only.

The third limitation is that SIC, particularly a 2 digit SIC may not accurately reflect the activity and therefore the hazards of a company. We did not know a company's more specific 3 or 4 digit SIC. In addition, for the purpose of calculating insurance premiums, the insurance companies in Michigan have developed their own classification system and have divided business activity into 400 different categories. When setting a worker compensation premium for a Michigan company, the insurance company will first determine the percentage of the payroll associated with each

of the different types of business activities and then apply a different rate to the payroll associated with each business activity. Therefore, companies with the same SICs may be considered by the insurance companies to have different risks depending on the percentage of workers in the different business activities. We were unable to sort the companies by the business activity classifications used by the insurance companies. Additional other factors that might affect worker claim rates such as unionization could not be controlled for in the analysis since we did not have information on union status.

The large differences in workers' compensation claims within a single industry in a single state highlight an issue that has not been addressed by workers compensation ''reforms''. Efforts at ''reforming'' workers' compensation by state legislatures, which are typically initiated to reduce employer costs because of data showing that one state has higher worker compensation costs than another, reduce employee benefits or change eligibility criteria but do not address the major differences in costs between companies from the same industry [Leigh and McCurdy, 2006]. Clearly some companies are more successful than other companies in reducing workers' compensation claims. When calculating workers' compensation premiums, insurance companies in Michigan include two factors that reflect the worker compensation experience of the individual companies they insure. There is an experience rating which reflects an individual company's average worker compensation experience for the 3 years prior to the year a premium is being paid and a premium credit for ''work-safety'' or ''cost control'' measures such as a return to work program or pre-employment drug testing. Given the differences in worker compensation claims between companies in the same SIC the monetary penalties based on a company's experience, rating average claims over the previous 3 years, or the interventions, which give credit for programs such as pre-employment drug testing, do not appear to be sufficient incentives or interventions to eliminate the large differences between employers within the same SIC. Programs that encourage companies with the highest rates to implement the preventive and disability management approaches used by the companies with the lowest rates would be true reforms that have significant health benefits in reducing both morbidity and costs.

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