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Expected Reduction in Workers' Compensation Claims for Owner Controlled Insurance Programs

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ABSTRACT
Owner Controlled Insurance Programs (OCIPs) are an effective method of reducing the insurance cost of very large construction projects. Workers' compensation loss control program is the key to the success of any OCIP. This study examines the average amount paid on workers' compensation claims for OCIPs, and compares it with the average amount paid on workers' comp claims in traditional insurance policies. Claim information was obtained from a large national insurance carrier in the United States. This comparison will give owners a clear picture of what they can expect from OCIP. The streamlining and simplification of the claims process in an OCIP reduces the amount claims are paid on average, but whether the reduction is significant enough to produce real savings compared to traditional insurance, is less clear.

KEYWORDS
Owner Controlled Insurance Programs, Wrap-Ups, Workers' Compensation

Introduction
Increasing insurance rates in the construction industry have prompted construction professionals, Owners, and insurance specialist to seek alternative methods to reduce the cost of insurance. One approach is for the owner to accept responsibility for procuring and managing the insurance program for the entire project. Commonly referred to as Owner Controlled Insurance Programs (OCIPs) differ from traditional insurance programs in that most contractors and sub-contractors on the site are covered under one site specific program rather than multiple individual programs. The owner makes payments on behalf of the contractors, and in return the contractors remove the cost of insurance from their bids. OCIPs have advantages in addition to savings, but the owner should be aware potential problems with OCIPs. The following is a list of advantages and disadvantages the owner should be aware of.

Owner Advantages
- OCIPs provide broader coverage with higher limits for contractors, which in turn gives the owner better protection
- Lower construction cost as a result of volume discounts
- Owner has more control over safety and loss control programs, which can lead to reduced losses
- Reduction in time required to obtain certificates of insurance form contractors
- Elimination of insurance as a requirement to bid work (Griener)

Owner Disadvantages

- Additional administrative burden can be overwhelming for owners who do not know what to expect
- Hard insurance markets may result in premium increases and coverage reductions
- Additional overhead cost to monitor insurance deductions in bids, and claims management
- Safety and loss control programs are the responsibility of the owner (Griener)

How OCIPs Reduce Cost

Combining the insurance needs of multiple contractors gives the owner considerable leverage in the insurance market, and the owner is able to negotiate a more favorable premium than if the contractors had entered the market separately. OCIPs also limit overlapping of coverage by individual policies. Therefore the owner does not get charged two or three times for the same coverage. A third source of savings is by the reduction of the experience modification rate (EMR) of the project. OCIPs can reduce the amount paid on most claims by providing a single, coordinated claims management program. Smaller claims reduce the EMR, and allow the owner to assume more risk by carrying higher deductibles. The owner essentially self-insurers for claims up to $100,000-$250,000 or more. Higher deductibles will provide a premium discount, and if the EMR for the site is lower that the industry standard, then the owner will save.

OCIPs may not be suitable for every project. They save the owner 1-3% of the total construction cost on average (Grenier 2000), and are typically only used on large projects exceeding $100mm in total construction cost, and where labor cost total at least 25-30% (Lew 1998). Because work-related injuries are the most predictable and controllable construction losses, the opportunity to reduce insurance costs is greatest in the workers' compensation line of coverage (Lew1998). This study compares the amount paid for workers' comp claims in OCIP policies with similar claims from Non-OCIP policies. A comparison of the two will give owners who are considering using an OCIP some idea of how much they can expect to reduce workers' comp claims. Industry data suggest that the amounts paid on workers' comp claims can be reduced as much as 30% of claims made under traditional policies (O'Haren 2002). This study examines whether this is an accurate figure, or whether insurance industry claims are not supported by statistics.

Literature Review

Several studies indicate that significant savings are possible with the use of OCIPs, and point to the importance of claims management. "Claims management is a primary method through which the costs savings of a project are obtained" (Blankenship and Banik, 2004). One such study examined five OCIP sites, and compared the workers' compensation cost /$100 for OCIP sites with traditional insurance programs. The study found that by using OCIPs the owners saved on average 2.29% (Blankenship, 2004). Another study examined OCIP sites and personal interviews with insurance professionals to determine the effectiveness of OCIP programs. This study indicates that historically, pure loss ratios on major projects using CIPs have averaged 21-35%. Based on this experience, premium savings of up to 50% of standard premiums are not unheard of (Lew 1998). Assuming that the insurance cost is 2-6% of the total construction cost, the owner can expect to save 1-3% of the total construction cost based on common industry figures.

Data Collection

Workers' comp claim information was obtained from a large national insurance carrier. The claims were filed form 1997-2004. Incidents occurred on projects in the eastern United States managed by the same general contractor. 246 OCIP claims and 646 Non-OCIP claims were examined for the purposes of this study.

Table 1: Comparison of Costs for OCIP and non-OCIP Programs

	Paid (Non-OCIP)	Paid (OCIP)

Statistical Variables	Data Set #1	Data Set #1
Mean	6194.98	2700.42
Std. Dev.	22217.66	12580.35
Median	339.05	253.84
Minimum	0.00	0.00
Maximum	298679.60	162058.51
Count	640	246
1st Quartile	105.71	159.90
3rd Quartile	1121.98	499.90
1.00%	0.00	0.00
2.50%	0.00	41.88
5.00%	0.00	84.66
10.00%	0.00	105.00
20.00%	75.04	143.81
80.00%	2052.61	699.15
90.00%	11731.17	2815.35
95.00%	34995.27	12045.73
97.50%	69169.07	24130.64
99.00%	112738.25	59988.07

Data Analysis and Results

Claims were broken down into two control groups based on the type insurance program they were covered under. Data set #1 includes 640 workers' comp claims from Non-OCIP or traditional insurance projects. Data set #2 includes 246 workers' compensation claims from an OCIP project. Table 1 summarizes the data information for both data set #1 and #2. Initial observation of the data indicates that the mean value for Non-OCIP claims is much higher than OCIP claims. The standard deviation is also greater for Non-OCIP claims which indicate that those claim amounts are more widely dispersed about the mean. The Median is the claim amount in which 50% of the claims fall below. The minimum and maximum are the lower and upper claim amounts. Both data sets had claims for which nothing was paid. The 1st and 3rd quartile figures show the value for which 25% of the data points fall below or above respectively. The percentile numbers in the one variable summary column indicate the percentage of claims that the corresponding value is greater than. For example 20% of OCIP looses fall below $143.81. This portion of table 1 is interesting because it shows that the lower quartile of Non-OCIP claims cost less than OCIP jobs on average.

Figures 1 and 2 illustrate the distribution of the claims paid amounts. The Y-axis is the frequency of data points, and the X-axis is the midpoint of each interval. The number of relatively small claims far outweighs those of larger claims.

Simply comparing mean values and quartile range is not sufficient to draw any meaningful conclusions. To do this we must test the data to determine whether it is sufficient enough to support tendencies observed in table 1. Table 2 illustrates a 95%and 99% confidence level test a common statistical test to analyze a data set's validity. The mean difference range for each test falls between the lower and upper limits. If the two data sets have equal variances then the confidence interval tests in for equal variances. If the data sets do not have equal variances then we must look at the Unequal variance column. The closer the p-value approaches zero the more unequal the variance is. It can be determined that the data variances are not equal. A p-value less than 0.0001 falls below the standard .05 required for equal variances. Therefore the data analysis in the unequal variances columns is the most valid. The 99% confidence interval test shows that

the difference in means falls between 423.23 and 6565.89. This is a large range, and suggests that more data may need to be collected to make more accurate conclusions.

Figure 1: Frequency of Costs for Non-OCIPs

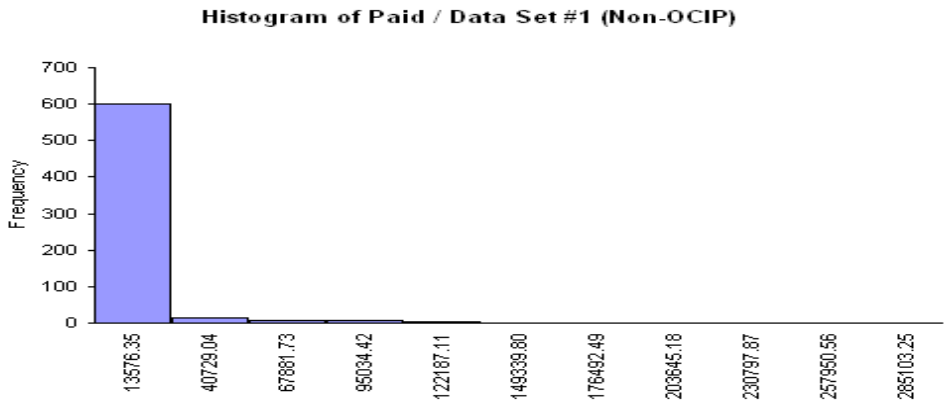
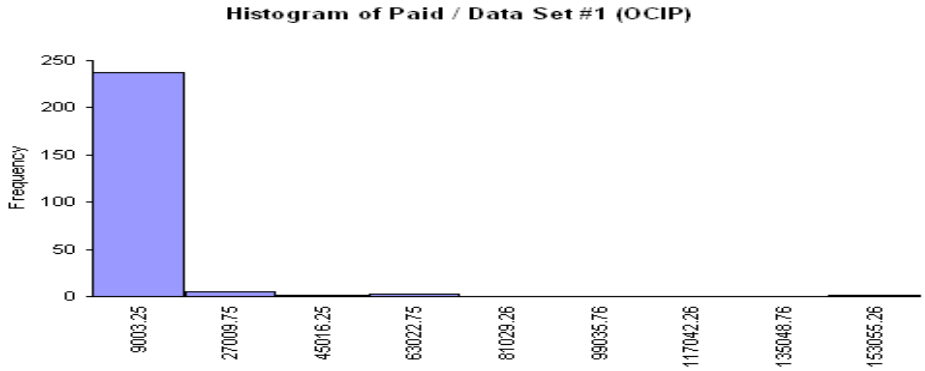


Figure 2: Frequency of Costs for OCIPs



A hypothesis test was conducted to determine whether the data will support the assertion that OCIP claims are less than Non-OCIP claims. The hypothesis test indirectly proves an alternative hypothesis by disproving a null hypothesis. The alternative hypothesis in this case is that Non-OCIP claims are on average greater than similar OCIP claims. The null hypothesis (hypothesized mean diff, table 3) is established to represent what might be expected. In this case it is reasonable to expect there is no difference between the means, or those workers' comp claims are the same regardless of policy structure.

Table 2: Validities of Data Set at 95% and 99% Confidence Level

	Paid (Non-OCIP)	Paid (OCIP)	Paid (Non-OCIP)	Paid (OCIP)
Sample Summaries	**Data Set #1**	**Data Set #1**	**Data Set #1**	**Data Set #1**
Sample Size	640	246	640	246
Sample Mean	6194.98	2700.42	6194.98	2700.42
Sample Std Dev	22217.66	12580.35	22217.66	12580.35

Conf. Intervals (Difference of Means)	Equal Variances	Unequal Variances	Equal Variances	Unequal Variances
Confidence Level	95.0%	95.0%	99.0%	99.0%
Sample Mean Difference	3494.56	3494.56	3494.56	3494.56
Standard Error of Difference	1501.613494	1189.387824	1501.613494	1189.387824
Degrees of Freedom	884	764	884	764
Lower Limit	547.416928	1159.704215	-381.7081742	423.2283222
Upper Limit	6441.703874	5829.416587	7370.828976	6565.89248

Equality of Variances Test	
Ratio of Sample Variances	3.1190
p-Value	< 0.0001

Most hypothesis test calculates a test statistic. The test statistic is compared to the null hypothesis, and if it is sufficiently extreme then the null hypothesis can be rejected in favor of the alternative hypothesis. The closer the p-value approaches 0 the stronger the evidence is in favor of the alternative hypothesis. Most statisticians require that the p-value is less than 0.05 before the null hypothesis can be rejected.

Table 3: Validity of Hypothesis

Hypothesis Test (Difference of Means)	Paid (Non-OCIP) Equal Variances	Paid (OCIP) Unequal Variances
Hypothesized Mean Difference	0	0
Alternative Hypothesis	> 0	> 0
Sample Mean Difference	3494.56	3494.56
Standard Error of Difference	1501.613494	1189.387824
Degrees of Freedom	884	763
t-Test Statistic	2.3272	2.9381
p-Value	0.0101	0.0017
Null Hypoth. at 10% Significance	Reject	Reject
Null Hypoth. at 5% Significance	Reject	Reject
Null Hypoth. at 1% Significance	Don't Reject	Reject

Equality of Variances Test	
Ratio of Sample Variances	3.1190
p-Value	< 0.0001

Table 3 shows that the p-value for this test is less than 0.0001. The hypothesis test shows that the null hypothesis can be rejected in all cases for unequal variance data. Thus we can with a good degree of confidence reject the assumption that the mean values for both data sets would be the same. We can therefore assume the alternative is true, or that the mean for data set #1 is greater than the mean for data set #2, or that Non-OCIP looses on average are greater than OCIP looses.

Although the hypothesis test shows that traditional insurance workers' comp programs can expect to have larger claims on average, the data is insufficient to determine with any degree of accuracy how much greater the Non-OCIP claims will be. The study neither confirms nor refutes insurance industry claims of 40%

reduction in workers' compensation claims. More data is needed to sufficiently narrow the possible limits of the mean difference.

Conclusion

Based on this study owners can expect to reduce the amount paid on workers' compensations claims, but it is not clear how much the saving will be. Currently the range is too wide to make any accurate estimate of the difference between Non-OCIP and OCIP workers' comp policies. This study does not take into consideration the additional overhead cost of administration, monitoring, and loss control programs, and their roles in reducing workers' compensation claims. The owner's ability to execute this task effectively can greatly impact the overall success of the OCIP. This study does show that despite statistical data showing a sharp decrease in workers' comp claims, the distribution of the data lends itself to a wide range of possible outcomes. Owners must be aware that even though initial numbers may look very promising, OCIPs are risky ventures. They require the owner to fully commit to the program, or the OCIP may cost more.

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