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A System Dynamics analysis of the Victorian Workcover Authority insurer scheme.

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Abstract

The Victorian Workcover Authority is charged with responsibility of administering insurance for work related injuries in the state of Victoria, Australia with a cost of work related injuries at over $1B ($1,072,000,000 for 1998/99) per year. The Authority contracts the claims management and premium collection to major insurance companies.

The companies are paid according to the size and risk of their portfolio and their performance in injury prevention, early return to work for injured workers and claims cost reduction. The companies are rewarded for improved performance and for maintaining good performance.

A system dynamics model was built to provide the insurers with a clear indication of the financial implications of their being able to improve their portfolios performance. The model was also designed to show the impact of gaining and/or losing clients whose overall performance may differ from the average performance of any given portfolio. This model raised a series of questions, which are discussed in the paper, about appropriate strategies for improving the financial performance of individual portfolios. The model was also used to examine the effectiveness of the incentive aimed at improving the portfolio performance.

The paper also discusses a series of related issues which involved questions of whether different financial performance by the insurers is related to structural considerations in the survival curves of injury claims or performance of individual insurers in handling claims. The reward calculations used by the Authority builds significant delays into this process. The impact of these delays is discussed in paper.

The Victorian Workcover Scheme.

The Victorian Workcover Authority (VWA) is charged with responsibility of administering insurance for work related injuries in the state of Victoria, Australia with a cost of work related injuries at over $1B ($1,072,000,000 for 1998/99) per year. The VWA contracts the claims management and premium collection to major insurance companies and pays them on the basis of their market share, through the Absolute Fee, and for the improvement in the safety record of their client portfolio through the Improvement Fee.

The system has two key components. The first is based on the market share the insurance companies, based on Risk Adjusted Remuneration (RAR), while the second is based on the True Risk Performance Ratio (TRPR) which reflects the safety performance of the companies that comprise their portfolios. Overtime there has been an increasing emphasis on TRPR with the insurance companies being paid for the improvement in the safety records of the companies in their portfolio. The basic method for calculating is the TRPR which is based on three components:

1. Risk Adjusted Remuneration (RAR) is the total salary bill of a company, a reflection of the market share of the insurer multiplied by an "industry risk factor", a reflection of the likelihood of accidents occurring. Companies in the manufacturing and construction sector have greater risk than pharmacies.
2. The cumulative injury costs of the company which is a reflection of the safety record.
3. The total projected costs of current injuries.

$$\text{TRPR} = \frac{\text{Cumulative Costs + Projected costs}}{\text{Cumulative RAR}}$$

Typically, the TRPR will be between 1.2 (for a company with a poor record and extensive liabilities) and 0.8 (for a company with a good record and limited liabilities).

Each injured worker contributes to the TRPR of his or her employer and to the TRPR of the insurance company with whom that employer insures. The insurance companies therefore have two interests: the first is to improve the overall safety records of each employer, (this is achieved through improving their safety procedures) and the second is by managing each injured worker claim and insuring that the costs are minimized (this is achieved by endeavoring to get an early return to work for the injured worker).

The causal relationships in this system are set out in Figure 1 which shows how the TRPR of each company impacts, not only on the payment to the insurer from VWA, but also on the workcover premium of the company itself. It also shows the double count of injury costs, in that they are calculated twice as current costs and as contributing to cumulative costs.

This reflects the fundamental policy aim of privatizing the Workcover process in Victoria. The Victorian Workcover Authority is essentially a co-ordinating and regulatory body with the day-to-day handling of the insurance business being contacted out to major insurance companies. The powerful financial incentives built into TRPR improvement programs were designed to encourage the insurance companies to bring pressure on employers to improve their occupational health safety records.

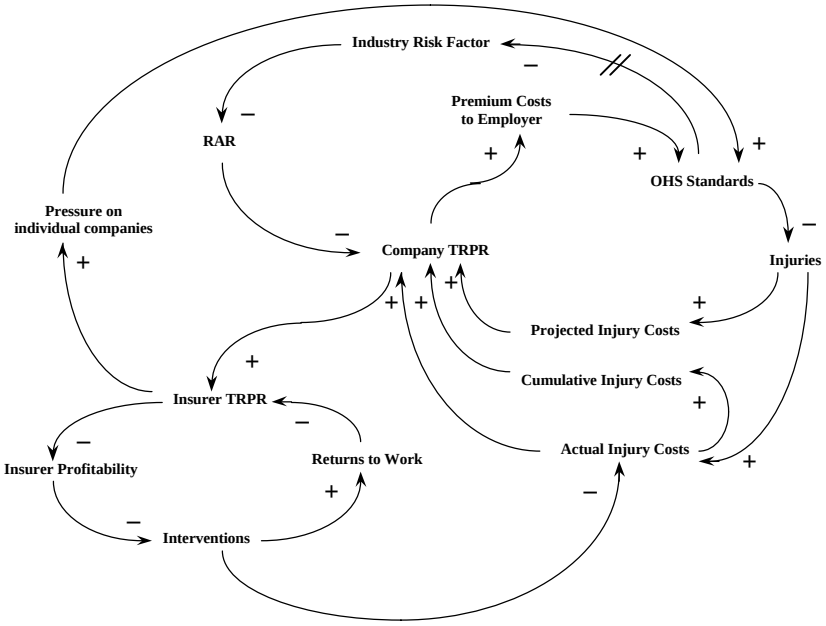

Figure 1: Causal relationship in the workcover system in Victoria.

Patterns of Injury Cost and Duration

The profiles of the insurance companies' performance in handling injured worker's claims demonstrated a similar pattern. The vast bulk of the claims are for injuries of a relatively short duration which are relatively inexpensive. However, some injuries are long-term requiring expensive and extensive treatment. These are a relatively small proportion of the total injuries but an extremely large proportion of cost. The time profiles are shown in Figure 1. It is an unfortunate consequence of modern industrial society that injuries do occur and some workers are left permanently disabled as a result. However, there is another dynamic in the statistics. That is, that the longer a worker is off work, regardless of the nature of the injury, the harder it is to get a return to work. The psychological impact of a long absence from work is, in effect, a positive feedback loop. For this reason, the insurance companies are eager to intervene early in the injured worker's progress to ensure the time off work is minimized.

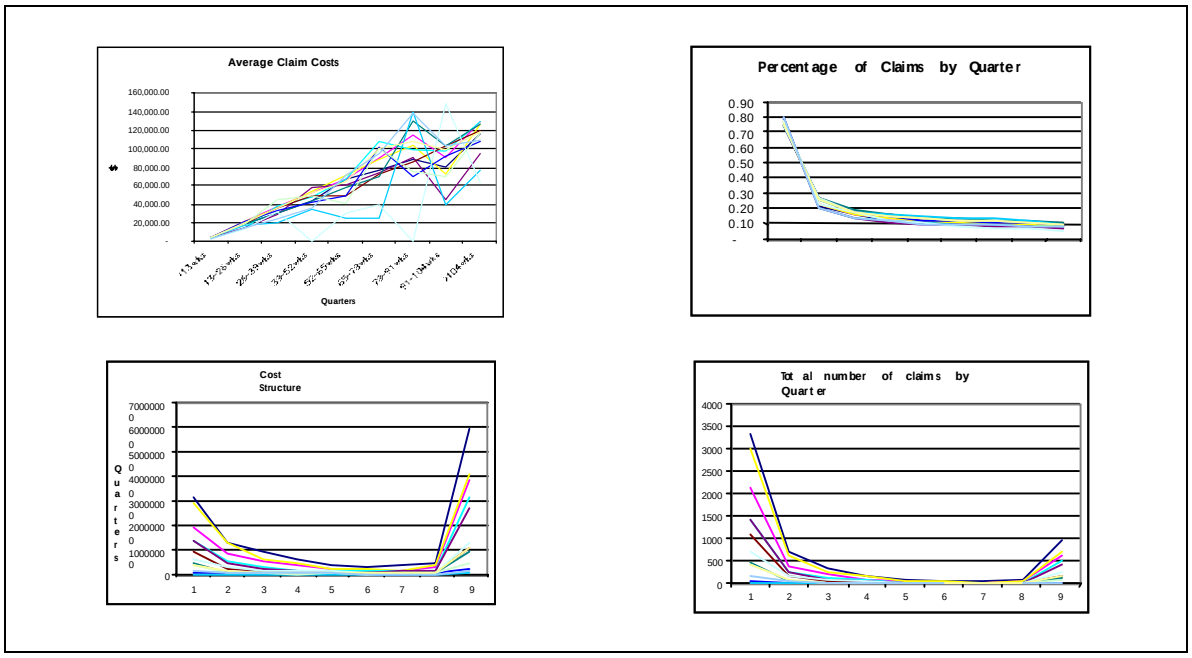

Figure 1: Costs and numbers of injury claims.

Insurance companies who are keen to improve their performance need to devote resources to new claims and minimize the time and cost early in the process or they can devote resources to those relatively few cases of their portfolios that are long-term and extremely expensive. Anecdotal evidence from the insurance companies indicates that dealing with these workers is a difficult and unrewarding process. Case management of injury claims has become a key strategy in cost reduction.

Another strategy to improve TRPR involves selective culling of clients who have relatively poor safety records and hence relatively high TRPRs. The removal of these clients improves the overall TRPR of the portfolio. The second element of the strategy is to seek out and attract clients with good safety records and hence relatively low TRPR's this also improve the overall TRPR of the insurance companies portfolio.

Two simulations showing the role of the improvements in TRPR are shown below in Table 1 which shows three strategies. The first is a “do nothing” strategy which sees an increase in TRPR and the consequent penalties and a decline in the absolute fee as market share stagnates. This is the least successful strategy. The second strategy is the focus exclusively on cost reduction through a 10% reduction in claims costs and duration. This is far more successful than the “do nothing” strategy. The third, and most successful strategy involves increasing market share by 10% per year. In this simulation, new clients have TRPRs equal to that of the insurer’s total portfolio. A strategy of attracting clients with better TRPRs than the portfolio and culling the clients effectively below average would have a more marked effect.

		TRPR	Absolute Fee	Improvement Fee	Total
No change	1	1.03	880,558.75	0	
	2	1.04	834,881.79	-262,129.87	
	3	1.06	772,478.04	-574,854.38	
	4	1.08	692,822.18	-939,762.50	
	5	1.1	599,707.71	-1,048,276.41	
Totals			3,780,448.47	-2825023.16	**955,425.31**
Costs	1	1.03	880,558.75	0	
	2	1.04	865,951.40	-168,151.55	
	3	1.04	862,480.94	-302,616.60	
	4	1.05	867,406.35	-411,686.11	
	5	1.05	881,595.11	-302,149.74	
Totals			4,357,992.55	-1184604	**3,173,388.55**
RAR	1	1.03	880,558.75	0.00	
	2	0.95	1,434,973.44	1,290,276.77	
	3	0.97	1,372,569.69	977,552.26	
	4	0.99	1,292,913.83	612,644.14	
	5	1.02	1,199,799.36	-1,240,570.96	
Totals			6,180,815.07	1,639,902.21	**7,820,717.28**

Table 1: Simulation results for three strategies.

The long-term impact of this approach by the insurance companies would be the development of a pool of " basket cases an ", companies whose safety record was so poor that no one was prepared to ensure them. The two possible outcomes of the situation, the first is the Workcover would need to become an insurer of last assuming responsibility for companies was particularly bad safety records. This would be an interesting counter intuitive outcome for the policy of privatization. Private industry takes the cream and the state sponsored organization is left with the rest.

Another possible outcome is that with increasing emphasis on improvement and the weighting of the improvement fee, an enterprising insurance company would see the "basket cases" with high TPPRs as an opportunity for immense profitability because the room for improvement with companies with poor safety records is great.

Conclusions

The structuring of financial rewards, through the use of TRPR for insurers has produced a marked emphasis on cost control and return to work in case management of injury claims. This is beneficial for insurers, companies and workers. TRPRs for individual companies also impact heavily on workcover insurance premiums and directly on a companies OHS policies.

The emphasis on market share, through RAR, has the potential to create a emphasis on portfolio management that would be completely unrelated to improving the OHS practices in Victoria.