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### **The Prevention of Occupational Injuries and Illness: The Role of Economic Incentives**

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# THE PREVENTION OF OCCUPATIONAL INJURIES AND ILLNESS: THE ROLE OF ECONOMIC INCENTIVES

Alan Clayton

## 1. INTRODUCTION

Over the last two centuries a variety of approaches to achieving safer workplaces, through the prevention of occupational injury and illness, have been developed. Such approaches fall into two main categories. First, direct approaches, most notably occupational health and safety legislation and associated compliance arrangements, which overtly address occupational risks and hazards through attempting to secure adherence to stipulated standards. Such standards may involve directly specifying the measures that must be adopted (specification standards), or the outcome that is to be achieved, while leaving the precise means of attaining this upon the person affixed with this outcome duty (performance standard), or through a management process that focuses upon systems of work rather than a focus upon specific issues (systems-based standards).<sup>1</sup> The measures for securing compliance with the stipulated standards are various and varied including encouragement and verbal persuasion by the supervising inspectorate, addressing immediate issues through improvement and prohibition notices, administrative penalties, fines, injunctions and even imprisonment.

Secondly, indirect approaches which seek to influence behaviour, in the direction of achieving safer workplaces or the reduction of occupational risks, through incentives that have the effect of encouraging or reinforcing this form of behaviour. These incentives are usually financial in nature, most notably through the pricing structure of the (almost invariably) compulsory workplace injury and illness insurance regime, through which the level of insurance payment is varied according to a rating of employer performance, usually expressed in terms of the employer's claims experience. An analysis of this approach forms the core of this paper. However, there can be other forms of financial incentives, such as the system of targeted loans for occupational health and safety improvement in the Caisse Regionale d'Assurance Maladie (CRAM) system in France. As well, other indirect approaches may form part of the armory of occupational health and safety enforcement, mentioned in the previous paragraph. This includes the resort to shaming as a means of influencing behaviour through measures such as publicity orders<sup>2</sup> and approaches that may have

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<sup>1</sup> For an excellent discussion of the nature of, and issues concerning, these different standards see chapter 2 of Neil Gunningham and Richard Johnstone, *Regulating Workplace Safety: Systems and Sanctions*, Oxford: Oxford University Press, 1999.

<sup>2</sup> This approach was included in the recommendations of the (then) Industry Commission in its 1995 inquiry into occupational health and safety: Industry Commission, *Work, Health and Safety* (Report No 47), Canberra: Australian Government Publishing Service, September 1995, recommendation 35, vol 1, pp 193-4.

an element of future economic detriment such as a preclusion, for a particular period, from being able to tender for Government projects.

This paper is concerned with the role of economic incentives in achieving beneficial occupational health and safety outcomes. This debate (to the extent that there has actually been a debate rather than a process of largely uncritical acceptance) has been largely dominated by the issue of insurance pricing and, in particular, experience rating of employer premiums. However, there are at least two other areas in which it has been argued that economic incentives in this area may operate. The first is the operation of the common law action for damages and its impact upon workplace safety. To some degree this involves a conflation with the issue of experience rating since an employer's workers' compensation premium will include an amount for indemnifying the employer against their common law liability. However, there have been arguments, beyond that of cost impact, that the common law action provides a spur to safety outcomes. Following a range of critical studies, from the mid-1960s, that have deconstructed the nature of the common law action and found it wanting in this and other aspects, this argument is now less rarely advanced and usually as an adjunct to a rights-based argument.<sup>3</sup> Secondly, there are arguments that the labour market itself, through the wages bargaining process, provides a mechanism whereby the market is able to determine an optimum level of safety.

These two approaches (namely common law and the mechanism of the labour market) are examined briefly before turning to the major focus of the paper, the workers' compensation insurance pricing system. In this primary focus, an attempt is made to tease out a number of issues, including basic assumptions, concerning the relationship of insurance pricing to occupational health and safety. The justification for such an exercise is the fact that there has been a lack of conceptual clarity over many such matters. In particular, the current Australian view, at least from the perspective of many workers' compensation agencies, has been a somewhat celebratory endorsement of experience rated premiums as a means by which the workers' compensation pricing system can bring about safer workplaces. Such a view seems based more on unexplored assumptions than upon an established empirical record.

A critical reading of the impact of experience rated premiums upon actual workplace safety, however, is not to minimise the importance of incentives in this area. Far from it. First, there is agreement upon the fact that experience rated premiums do have an impact upon workers' compensation *claims*. However, this is a different matter to a demonstration that such a pricing approach has a significant positive impact upon *accidents, injuries and illnesses*. Secondly, it appears likely that this form of merit rating may have some positive influence upon rehabilitation and return-to-work activities, although this may need to be balanced by some negative impact upon aspects of the claims management process. Thirdly, there are extremely important issues concerning economic incentives for prevention, both within and outside of the area of insurance premium pricing, which are worthy of further exploration. In particular, the French CRAM has pursued a number of such approaches, apparently with considerable success.

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<sup>3</sup> A recent example of such an argument is the Australian Plaintiff Lawyers Association (APLA) submission, dated 2 August 2002, to the Law of Negligence Review Panel.

Innovations in workers' compensation insurance pricing methodology have principally emanated from the United States. In time, many of these principles and practices have been adopted in Australia. This is certainly the case with experience rating. Experience rating emerged, first in the form of 'prospective rating', in the first decade of workers' compensation operations in the United States, to be overtaken by 'retrospective rating' from the 1930s. It appears that these pricing approaches emerged chiefly as marketing tools by private insurers in their battle to secure the business of larger corporate entities and because of some operational difficulties with the alternative approach of schedule rating. Although safety impacts were also cited in favour of the experience rating approach from its early years, these appear to have been largely rhetorical gestures to give a more altruistic spin upon the primary mercantile impulse.

Academic approaches that attempted to measure the influence of experience rated premium systems upon workplace health and safety emerged from the mid-1970s, and particularly the 1980s. Even in terms of their own methodology, these studies have shown variable results, ranging from a significant impact, through to no effect and even to an adverse impact upon workplace health and safety. However, more fundamentally, there are some significant methodological issues concerning the nature of data and of variables that are controlled for in the regression analysis undertaken which have the effect of rendering quite problematical the purported conclusions of these studies. These issues are considered at some length in the paper, particularly within the Australian context. The paper concludes with a brief illustration of two approaches to economic incentives in the French CRAM that may offer the basis for other, possibly more fruitful, approaches for economic incentives for achieving safer workplaces.

## 2. COMMON LAW ACTION FOR DAMAGES

What is generally known as the common law action for damages is essentially a misnomer, as it is basically the creation of statute. The ability of the tort action to serve as a remedy was severely limited as the result of the operation of the 'unholy trinity' of employer defences. In the first recorded action by an employee against their employer for damages for work-related injury, *Priestley v Fowler*,<sup>4</sup> Lord Abinger laid the basis for what subsequently became known as the doctrine of common employment.<sup>5</sup> This relieved employers from any liability where the employee's injuries were caused by the negligence of a fellow employee. Similarly, at common law the slightest negligent action by an employee that contributed to his or her injury deprived them of a remedy as contributory negligence operated as a complete defence. Thirdly, the doctrine of voluntary assumption of the risk (*volenti non fit injuria*) rested on the notion that an employee who simply remained at work impliedly accepted the (at least obvious) risks involved with their employment. The practical ability to resort to the common law negligence action, in the context of occupational injury and illness, has, apart from a judicial weakening of the severity of

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<sup>4</sup> (1837) 3 M & W 1.

<sup>5</sup> This was given more precise formulation by the House of Lords in *Bartonshill Coal Co v Reid* (1858) 3 Macq which also put an end to the resistance to this doctrine by Scottish judges.

the *volenti* doctrine, not been the result of developments in the common law, as that term is usually understood as relating to judicial rather than statutory elaboration, but rather the result of legislative intervention to abolish the defence of common employment and to introduce the apportionment doctrine in cases of contributory negligence. As well, in the case of death, the operation of the common law doctrine of ‘the rule in *Baker v Bolton*’, that it was not a civil wrong to cause the death of a human being, precluded a dependant’s action until the Imperial *Fatal Accidents Act* of 1846 removed this disability and established the ‘Lord Campbell’s Act’ action for dependants in cases of wrongful death.

This brief historical summary of the essentially statutory-enabled basis of the current common law action is presented because, particularly in some areas of the law and economics movement, common law principles, in terms of judicially established precepts, are seen in terms of a means of efficient allocation of social resources. Thus, perhaps the best-known of the law and economics theorists, Richard Posner, has formulated an efficiency theory of common law according to which “the common law is best (not perfectly) explained as a system for maximizing the wealth of society”.<sup>6</sup> According to Posner, “the common law method is to allocate responsibilities between people engaged in intersecting activities in such a way as to maximize the joint value, or, what amounts to the same thing, minimize the joint cost of the activities”<sup>7</sup> so that “almost any tort problem can be solved as a contract problem, by asking what the people involved in an accident would have agreed on in advance with regard to safety measures if transaction costs had not been prohibitive.”<sup>8</sup>

It is hard to square the realities of the judicially created ‘unholy trinity’ of defences with any such theoretical view of common law, unless the efficiency theory being represented is that of the protection of nascent capitalist enterprise with the common law operating as a subsidy for industrialisation. Indeed it was the demonstrated deficiencies of the judicially developed common law principles that principally led to the adoption of (initially limited) workers’ compensation legislation in 1897 in Britain, and from 1900, in Australia. Again, it was not until the statutory abrogation of the common employment doctrine (generally during the 1940s) and the adoption of apportionment principles (often in the early 1950s) that there was any general practical ability to have recourse to this remedy. In Australian workers’ compensation, until relatively recently, there was, apart from satisfying the conditions of the negligence action itself, no restriction upon common law apart from, in many jurisdictions, a requirement to elect between statutory no fault benefits and resort to common law. Over time this election requirement was generally removed. However, from the mid-1980s, there has been an almost continuous process of legislative modification of both the conditions of access to common law and of aspects (for example, the imposition of caps) of various heads of damages. The most radical form of modification was complete abrogation. This occurred in the Northern Territory, with the introduction of the *Work Health Act 1986*, effective from 1 January 1987, and in South Australia as the result of legislative changes with effect from 3 December 1992. In the two Commonwealth jurisdictions – Comcare and Seacare – there is almost de facto abrogation with very limited access to common law. In a

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<sup>6</sup> Richard Posner, *Economic Analysis of Law*, 4<sup>th</sup> edition, Boston: Little Brown and Company, 1992, at 23.

<sup>7</sup> *Ibid*, p 98.

<sup>8</sup> *Ibid*, p 252.

number of other jurisdictions – for instance, Victoria, Western Australia and Tasmania – access to common law is essentially restricted to workers with a ‘serious injury’, although there is some variation as to how the ‘serious injury’ requirement is satisfied. A lesser, but still significant, threshold exists under the current New South Wales in provisions that have operated since 27 November 2001. Also, most jurisdictions that retain common law have caps upon particular heads of damages.<sup>9</sup>

In part, the changing attitude to, and diminution of the role of, the common law action has come from a critique of its operations by both academic commentators and official commissions of inquiry. While there have been earlier articulate criticisms of its operation in particular fields, for instance motor vehicle injuries,<sup>10</sup> the contemporary re-evaluation of its role began in 1967 with the publication of Professor Terence Ison’s *Forensic Lottery*<sup>11</sup> and path-breaking report<sup>12</sup> by the New Zealand judge, Owen Woodhouse, that preceded the adoption of that country’s unique comprehensive accident compensation scheme in 1974. This critique has continued in works by other academic lawyers<sup>13</sup> and in the reports of other inquiries and reviews.<sup>14</sup> Perhaps as a result, the claims for common law and the fault principle have more recently taken on an increasingly ‘rights’ and ‘corrective justice’ perspective rather than any vigorous advocacy of functional felicity, including claims for being a significant beneficial influence upon injury and illness prevention.

Nevertheless, claims for the common law as a facilitator of community safety are still included, along with other reasons, in putting the case for its continued utility in the arena of accident compensation. The contemporary case has been summarised in one of the standard works in this field, as follows:

The main arguments used in favour of retention of the [fault] principle are that it expresses a basic notion of human responsibility and of corrective justice, that it plays an important role in accident prevention, and that, being basically a free-market mechanism, it allocates social resources efficiently.<sup>15</sup>

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<sup>9</sup> A convenient comparative summary of workers’ compensation benefits and other arrangements across the various jurisdictions is contained in the Heads of Workplace Safety and Compensation Authorities compendium *Comparison of Workers’ Compensation Arrangements in Australia and New Zealand*. The last issue was in November 2001.

<sup>10</sup> The early seminal example is the Columbia Report: *Report of the Committee to Study Compensation for Automobile Accidents to the Columbia University Council for Research in the Social Sciences*, New York: Columbia University, 1932.

<sup>11</sup> Terence G Ison, *The Forensic Lottery*, London: Staples Press, 1967.

<sup>12</sup> *Report of the Royal Commission of Inquiry on Compensation for Personal Injuries in New Zealand*, Wellington: Government Printer, 1967.

<sup>13</sup> For instance, Marcia Neave and Louise Howell, *The Adequacy of Common Law Damages*, Adelaide: Adelaide Law Review, 1992.

<sup>14</sup> These include the Australian Woodhouse Report (*Compensation and Rehabilitation in Australia, Report of the National Committee of Inquiry*, Canberra: Australian Government Publishing Service, 1974), the Pearson Report (*Report of the Royal Commission on Civil Liability and Compensation for Personal Injury*, 1978), the Cooney Report (*Report of the Committee of Inquiry into the Victorian Workers’ Compensation System*, Melbourne: Government Printer, 1984) and the Seamen’s Compensation Review (*Report of the Seamen’s Compensation Review*, Canberra: Australian Government Publishing Service, 1988). Peter Cane, *Atiyah’s Accidents, Compensation and the Law*, 5<sup>th</sup> ed., London: Butterworths, 1993, at 397-8.

The argument that the common law serves a role in injury prevention operates more at an abstract level than in reality. This can be seen in the position taken by the Industry Commission in its 1994 report on Workers' Compensation in Australia, which stated that:

The prospect of being sued for negligence can create positive incentives for both employees and employers to be careful – since employees will have their damages reduced by the proportion of their own negligence in causing harm; and employers will be liable for harm to employees due to employer negligence.

However, in the very next sentence, it went on to say that:

Where common law damages are insured against – as in compulsory workers' compensation – these incentives are considerably lessened.<sup>16</sup>

The recent Australian Plaintiffs Lawyers Association (APLA) submission to the Law of Negligence Review Panel,<sup>17</sup> dated 2 August 2002, states that one of the advantages of common law is its role in terms of deterrence which it defines as

[s]erving as an object lesson to others in society to avoid similar conduct. This educates people about what is and is not socially acceptable behaviour.

The APLA submission sees deterrence as taking many forms including:

- Fear of having to pay compensation
- Fear of litigation
- Fear of public ridicule
- Loss of reputation among peers
- Fear of increased excesses and deductibles under insurance policies
- Fear of insurer refusing to hold you covered if a claim is made
- Fear of losing customer goodwill
- Fear of loss of business income, etc.

However, again, the realities of the insurance regime and the litigation process mean that many of these claimed deterrent features are, in practice, largely illusory. The fear of having to pay compensation is essentially undercut by the fact of compulsory insurance. The various workers' compensation schemes have arrangements, such as an uninsured employers fund, that will meet the compensation costs where an employer tortfeasor is uninsured. The insurance process, again, largely deals with the fear of litigation since the insurer is subrogated to the rights of the insured and conducts the litigation on their behalf.

Fear of public ridicule and fear of loss of reputation among peers, as well as the fear of losing customer goodwill and fear of loss of business income, appear predicated upon a notion that common law cases generally go to a full trial where the evidence is exposed to observers in court and to the media. This is far from the case. Only a miniscule percentage of cases (less than three percent) actually go to a full trial and most of these are settled in running. The overwhelming bulk of cases are settled either in the pre-trial litigation processes or on the famous 'courthouse steps' or at the

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<sup>16</sup> Industry Commission, *Workers' Compensation in Australia*, (Report No 36), Canberra: Australian Government Publishing Service, February 1994, p 59.

<sup>17</sup> This submission is presented on the APLA website, <[www.apla.com.au](http://www.apla.com.au)>.

‘courthouse door’. Indeed, there have been vigorous moves amongst the various workers’ compensation and compulsory third party motor insurance schemes in recent years to implement alternative dispute resolution and compulsory pre-trial settlement regimes aimed at attaining early settlement of claims. The pre-trial settlement processes are often backed by substantial cost penalties if a claim proceeds further and does not achieve a significantly better result by settlement or award than would have been attained at this earlier stage. This is in addition to the pressures towards settlement in the court process itself through ‘payment into court’ procedures.

The issue of a fear of increased excesses and deductibles under insurance policies is unlikely to be a significant incentive for preventive action. Such changes are generally the result of general conditions within the liability insurance market itself rather than as a response to an individual claim. This is the current situation with respect to public liability, medical malpractice and an emerging issue with directors and officers insurance. During the 1980s there was a prolonged crisis of insurance availability and affordability that had a significant impact upon a range of classes of general insurance, including workers’ compensation/ employers’ liability insurance, with a number of consequences, apart from price, including sharply increased excesses and deductibles.

Also, there are often countervailing influences to any attempt by an insurer to react to a common law (or large statutory payment) claim by imposing increased excesses and deductibles or significantly raising the cost of insurance, at least in privately underwritten schemes. As the Cooney Committee found during its hearings,<sup>18</sup> employers often have a range of other classes of insurance (for example, property, industrial special risks, public liability, professional indemnity, directors and officers etc) with the one insurer. An attempt by an insurer to impose additional conditions or other financial sanctions would likely to be met by a response to shift the entire portfolio of insurances to another insurer. The evidence to the Cooney Inquiry was that this almost invariably resulted in a back down by the insurer.

Similarly, a fear of an insurer refusing to hold an employer covered if a claim is made is a largely fanciful concern and one that would hardly result in an incentive for safety. Indeed, it is difficult to see where such a response by an insurer would have any prospect of being sustained simply because a claim was made against an employer because of his or her negligence, either directly or through vicarious liability. The ability for an insurer to avoid coverage under a contract of insurance would only realistically arise where there was some other action by the employer that could give rise to such an insurer response, such as fraud or misrepresentation.

In fact, there are very significant features of the common law action that actively militate against it having any real deterrence effect.<sup>19</sup> First, the linkage between the action (or failure to act) and the consequence in terms of any possible future premium adjustment is extremely diffused and attenuated and hence unlikely to have a deterrent effect. The statutes of limitations usually vary from between three and six years and, notwithstanding strong efforts by schemes to achieve early settlement of claims, many years are likely to have elapsed between the time of injury and the resolution of the

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<sup>18</sup> The author was research officer to, and secretary of, the Cooney Committee and attended all its hearings.

<sup>19</sup> See *Report of the Seamen’s Compensation Review, op cit*, at 221-227.

claim and still longer before any flow-on effect in terms of premium adjustment eventuates. This is the case with traumatic injury. In the case of occupational diseases, particularly those with long latency periods and/or involving multiple-causation, both the temporal linkage between negligence and consequence, and also establishing that an identifiable action by the defendant was medically a cause in fact of the illness, is so attenuated, that not even a theoretical notion of deterrence can be meaningfully entertained.

Secondly, not only are any consequences to a negligent employer extremely diffused in a temporal sense, they are also very limited in an actual sense. As already mentioned, an employer is indemnified against any liability through the mechanism of (compulsory) insurance. Accordingly, apart from very large corporate entities who have an administrative dispensation to act as self-insurers, the employer cannot be affixed with the full cost of the action. The whole *raison d'être* of insurance is that of “pulverisation of the risk” and consequently even a very large claim will, generally, have only a relatively minor impact in terms of premium adjustment. As well, as will be discussed further below, in respect to experience rating of premiums, there are sizing modifiers at work as well, so that the effect, in terms of premium impact, of even a catastrophic claim upon a small employer will be quite miniscule. The result is that, where an employee is injured or becomes ill as the result of employer negligence, not simply will there be a great delay between action and consequence but the consequence will be comparatively minor and simply regarded as a normal cost of production.

Thirdly, there are features about the litigation process that mean that common law may, in fact, militate against an improvement of workplace safety. What amounts to negligent conduct involves a balancing of the likelihood of an event occurring, its likely severity and the practicability of taking precautions. While the fact that action was taken after an accident to prevent a similar accident occurring in the future does not constitute evidence of negligence in respect of the accident itself, it is evidence that the prevention of the accident was practicable. Thus, as Professor Harold Luntz has noted:

On occasions, employers, conscious of the importance of discovering the true cause of an accident, will make an immediate investigation, but will then destroy the memoranda recording the results of the investigation in order to avoid having to produce the documents if the matter comes to trial. If a method of avoiding harm is discovered, the precautions may not be taken, since their installation provides evidence of their practicability . . . Australian courts have repeatedly held that evidence of subsequent precautions is admissible to prove the practicability of those precautions.<sup>20</sup>

When the actual dynamics of the operation of the common law action for damages are examined, there is little evidence, if any, that it provides any real deterrence role and thus assists in achieving safer workplaces and systems of work. At best it may be said to be irrelevant to this goal, at worst to have a negative impact.

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<sup>20</sup> H Luntz, “The Role of Compensation in Health and Safety at Work”, (1981) 23 *Journal of Industrial Relations* 383 at 389.

### 3. LABOUR MARKET AS A REGULATOR OF OH&S

According to economic theory, occupational health and safety is essentially a commodity, the value of which can be determined by the labour market.<sup>21</sup> That is, workers are rational actors who can assess the level of risk inherent in a job and balance those risks against the benefits associated with that job. If workers deem that the benefits are not sufficient to compensate for the risks, then they will not sign on. Accordingly, if employers, who are offering such jobs, find that they are unable to recruit workers to fill these positions they will have to increase the level of wage compensation to a level that sufficient numbers of workers will feel meets their view of an acceptable bargain. The added wage level that needs to be paid to compensate for a higher level of risk constitutes a cost to the employer. If an employer considers that this cost is too great then the employer can avoid it by increasing the level of safety. That incentive to make jobs safer will exist to the extent that the marginal cost of increasing job safety is less than the corresponding wage differential that will have to be paid in the absence of making such a change. In this manner, the market mechanism is able to determine the optimum level of safety.

This economic model assumes perfect competition in the labour market and perfect information by employees of the workplace risks and their consequences. As the result of a range of friction elements, there is never perfect competition in the labour market such that workers are perfectly free to switch jobs. These friction elements include personal issues such as highly specialised skills that are not readily transferable to other jobs, family constraints such as schooling for children, particularly those with special needs, and other constraints such as the economic cycle. More fundamentally, the economic framework employed adopts a highly simplified model of labour market dynamics, ignoring the insights of some specialist labour economists that the labour market tends to be segmented into ‘primary’ and ‘secondary’ components with workers with limited education and low skills tending to be trapped by these factors into the latter segment, one that is both less well-paid and more dangerous.<sup>22</sup>

As well, it is highly facile to suggest that workers have satisfactory means for properly assessing job risk and making the risk/compensation computations suggested by this form of economic theory. Risk perception is a highly complex and nuanced exercise with a wide range of variants including age and background.<sup>23</sup> While valid with respect to the risk of traumatic injury, this observation has stronger force in relation to the risks associated with occupational disease. As well, there are numerous examples where information concerning particular workplace hazards has been deliberately suppressed. One of the most notable of these concerns the link between exposure to asbestos and a range of diseases including lung cancer. As early as 1918 insurance companies were declining to provide life insurance coverage to workers in asbestos-related occupations and a direct causal link had been established by medical

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<sup>21</sup> W Oi, “On the Economics of Industrial Safety”, [1974] *Law and Contemporary Problems* 669.

<sup>22</sup> J E King, *Labour Economics*, 2<sup>nd</sup> ed, Basingstoke: Macmillan, 1990.

<sup>23</sup> See Paul Slovic, *The Perception of Risk*, Sterling, VA: Stylus Publishing, 2000

research during the 1930s. However asbestos manufacturers deliberately suppressed any such information until the public became informed during the 1970s.<sup>24</sup>

Notwithstanding that these conditions of the model are never met in practice, studies by some economists<sup>25</sup> have purported to show that workers in risky employment, after controlling for education, experience and other market characteristics, do in fact receive higher wages. However, this view is at variance with both lay understanding (for instance, much of the history of immigration is that of relatively unskilled workers willing to take on dangerous jobs at very low pay) and the empirical record. One study found that dangerous jobs were generally filled by poorly educated and low skilled workers with such jobs paying between 20 and 30 percent less than safe employment after taking into account education and skill levels.<sup>26</sup> Consequently, such positions were most likely to be taken by workers from minority groups; thus, in California, Hispanic males were 80 percent (and African-Americans 40 percent) more likely to suffer a disabling injury or illness than whites.<sup>27</sup>

## 4. EXPERIENCE RATING

### Introduction

Fundamentally, insurance is simply a price on risk. That is, being able to compute an amount that will need to be collected by the relevant system to meet the costs involved of its operation. It is possible that a pricing arrangement (that is, a premium or levy system) can be established without any need to differentiate between the risks being covered so that, for instance, the same relative financial contribution for coverage would apply to demolition workers as for clerical workers. Such an approach is common in social insurance systems.

However, since their inception, workers' compensation schemes have based their pricing policies upon a system of differentiated risk. The classification of risk, at least initially, was generally undertaken on the basis of occupation or of industrial process. However, very few such groups are, by themselves, large enough to enable credible risk rating for insurance purposes. In the Victorian workers' compensation scheme, prior to the introduction of the WorkCare system, for instance, there were around 550 separate classifications but many were very small.<sup>28</sup> Accordingly, for rating purposes, the first step was the establishment of what are called 'gross manual rates'. This involves banding together into a single group a number of occupations or industrial

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<sup>24</sup> I Selikoff and D Lee, *Asbestos and Disease*, New York: Academic Press, 1978.

<sup>25</sup> For example, W K Viscusi, *Risk by Choice: Regulating Health and Safety in the Workplace*, Cambridge MA: Harvard University Press, 1983.

<sup>26</sup> J Robinson, "Exposure to Occupational Hazards among Hispanics, Blacks and Non-Hispanic Whites in California, (1989) 79(5) *American Journal of Public Health* 629.

<sup>27</sup> *Ibid.* See also J Robinson, *Toil and Toxics: Workplace Struggles and Political Strategies for Occupational Safety and Health*, Berkeley: University of California Press, 1991

<sup>28</sup> One classification, 'Eucalyptus Oil Manufacturing' appeared to have only two employees; Cooney Report, *op cit*, para 6.8.2.

processes that represent homogenous risks.<sup>29</sup> That group is then given a particular premium rate, generally expressed in terms of an amount per \$100 of payroll.

Many (if not most) employers under this system had a total workers' compensation premium that was comprised of a number of sub-elements according to the nature of their workforce. This created incentives for gaming behaviour by employers through minimizing, on their workers' compensation insurance declarations, the number of employees engaged in activities that attracted a higher premium rate. In response to this and other concerns, Australian workers' compensation schemes have generally moved to a basis of industry classification for risk rating purposes. While there are some significant variations between particular schemes, the basis of classification generally reflects that of the Australian and New Zealand Standard of Industrial Classification (ANZSIC). An employer is classified to the industry grouping that reflects the enterprise's predominant area of activity. The premium or levy rate that is applicable to that classification is applied to the employer's total leviable remuneration (payroll) regardless of the fact that this may encompass a variety of occupational groups and consequently different levels of risk.

At this stage there is no attempt to distinguish, in setting premium or levy rates, between different employers in the same risk-rating category. The actual premium amount paid will be a function of the level of the employer's payroll that is subject to rating purposes and the employer's levy rate. An attempt to distinguish between different employers, within the same risk-rating group, according to their individual risk profile is sometimes called 'merit rating'. There are three main forms of merit rating, namely 'schedule rating', 'prospective experience rating' and 'retrospective experience rating'.

## Forms and Origins of Merit Rating

### *Schedule Rating*

Schedule rating is predicated upon the existence of a direct relationship between the physical conditions of a workplace (the condition, maintenance of plant and machinery etc) and the incidence and severity of injuries. It operates on the basis of premium credits or surcharges that are given to the employer following an actual inspection of the workplace by a safety inspector.<sup>30</sup> It was the earliest approach to merit rating and one that was supported by the industrial safety movement which played a prominent role in the early years of American workers' compensation.<sup>31</sup> However, it suffered from a number of drawbacks that led to it being superseded by forms of experience rating. First, there were difficulties in translating its theoretical insights into a readily implementable operational tool and in maintaining consistency

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<sup>29</sup> In the pre-1985 Victorian scheme, for instance, occupations relating to butter, aerated and mineral water, sugar, cigarettes and blood and bone and dripping manufacture were brought together in a single rating group; *ibid.*

<sup>30</sup> For an account of the initial development of schedule rating methodology in the United States, see Carl M Hansen, "Development, Application and Effect of Schedule Rating in Liability and Compensation Insurance", (1914-15) *Proceedings of the Casualty Actuarial and Statistical Society*, volume I, 217.

<sup>31</sup> See Mark Aldrich, *Safety First: Technology, Labor and Business in the Building of American Work Safety 1870-1939*, Baltimore, MD: Johns Hopkins University Press, 1997.

between the approaches taken by different inspectors. Secondly, while it could be seen to be applicable to enterprises with a heavy reliance upon plant and machinery, there were difficulties in seeing its role in other forms of enterprise. Thirdly, it was a very time and resource intensive approach. From the first decade of workers' compensation development in the United States, attention passed to experience rating as the preferred approach to merit rating and, by 1934, the National Council on Compensation Insurance, the major national body responsible for rate filing with state insurance commissioners had abandoned scheduled rating altogether.

### *Prospective experience rating*

The earliest state workers' compensation statutes to survive constitutional challenge in the United States were those of Wisconsin and Washington State in 1911. The Casualty Actuarial and Statistical Society was formed by a group of insurance actuaries and underwriters and held its first meeting at the City Club, New York on 7 November 1914. Leading members of this Society were at the forefront of fashioning workers' compensation insurance methodology and the Proceedings of the Society are dominated by such discussions with a strong emphasis upon the issue of merit rating.

In fact, through the efforts of actuaries associated with the various scheme regulators and with insurance underwriters, there were, by 1916, four experience-rating plan models that operated in a number of state jurisdictions. These were what are known as 'prospective experience rating' plans in that the claims experience upon which the deviation from the manual rate is made is that of a given period prior to the current policy year. In the New York plan (promulgated in January 1915) this period was not less than two years and not more than five years and in the Massachusetts plan (promulgated in 1916) the period was set at between one and five years. Under both of these schemes the amount of payroll during the period covered by the experience must be at least \$25,000. So its operation was confined to relatively large employers.

It is clear from the contemporary accounts of the actuaries and underwriters who were involved in devising these arrangements that, although there were a number of suggested reasons for their introduction, the major pressure came from insurance underwriters who wanted a basis upon which they could vary the manual rates as a means of attracting the business of large employers. One of the architects of the New York plan, Joseph H Woodward, actuary to the New York State Workmen's Compensation Commission, stated that:<sup>32</sup>

Several conditions have given rise to a demand for some system of experience rating.

“1. An employer who, through good fortune or good management, has fewer or less costly accidents than other employers in the same business or industry, regards his rate, justly or unjustly as excessive, and insistently demands relief.

2. Under conditions of unregulated competition between insurance companies experience rating has in the past offered a convenient and specious means of granting discriminatory favors to particular policy holders and of conciliating agents and brokers controlling compensation and other collateral lines of insurance.

3. It may well be argued that by properly rewarding an employer for good experience and penalizing him for bad experience we have a cheap and easy means of

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<sup>32</sup> Joseph H Woodward, “The Experience Rating of Workmen's Compensation Risks”, (1915-16) *Proceedings of the Casualty Actuarial and Statistical Society*, volume II, 356 at 356-7.

encouraging organization for safety and the guarding of machinery, thus conserving life and limb.

Woodward's former deputy, as assistant actuary of the New York Commission, Winfield W Greene, stated that "the chief genesis of the demand for consideration of individual experience in rating compensation risks lies in the hope for competitive advantage on the part of the carrier"<sup>33</sup> while, possibly the most acute contemporary observer of them all, Ezekiel Hinton Downey, successively Statistician to the Wisconsin Industrial Commission and Special Deputy within the Pennsylvania Department of Insurance, dismissed the notion that experience rating had any utility for injury prevention, remarking that "[e]xperience rating, in short, is chiefly valuable as a competitive sales argument."<sup>34</sup>

The mercantile imperative for experience rating was demonstrated during its first year of operation in New York where, due to the excesses of some insurers, the plan was, in 1916, suspended and an inquiry launched by the New York Superintendent of Insurance into its operation. Commenting on a brief on the subject submitted to the Superintendent of Insurance, Joseph Woodward noted that it demonstrated:<sup>35</sup>

very clearly that the history of experience rating is in large measure a history of competitive abuses. It is shown that the early liability rates which purported to be based upon individual experience and which were known as 'special rates' arose not from any desire to secure superior equity as between employers, but simply as a means of defense against competitive inroads upon premium income.

and concluded that:<sup>36</sup>

With such a history, it naturally follows that special pains should be taken that any experience rating system of the present day should be safeguarded in every possible way against competitive abuses.

From this early period, there also emerged concerns about the effects of experience rating upon the handling of workers' compensation claims. The American Society of Labor Legislation in a report entitled, 'Three Years under the New Jersey Workmen's Compensation Law' drew attention to a disturbing practice among some employers of bringing pressure to bear upon their employees not to lodge compensation claims because of the effect that this would have on the employer's claims experience.<sup>37</sup> Such considerations moved the Industrial Commission of Colorado to rescind its approval of an experience-rating plan in October 1915.<sup>38</sup>

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<sup>33</sup> Winfield W Greene, "Should the Compensation Premium Reflect the Experience of the Individual Risk?" (1915-16) *Proceedings of the Casualty Actuarial and Statistical Society*, volume II, 347 at 354.

<sup>34</sup> E H Downey, *Workmen's Compensation*, New York: Macmillan, 1924, p 97.

<sup>35</sup> Woodward, *op cit*, at 369.

<sup>36</sup> *Ibid.*

<sup>37</sup> Cited in Greene, *op cit*, at 348.

<sup>38</sup> *Ibid.*

### *Retrospective experience rating*

Retrospective rating emerged in the United States in 1936. Again, the impetus for its introduction appears to have been related to insurance company competition in the workers' compensation insurance market, this time between mutual insurers and joint stock companies. One of the standard works of workers' compensation commentary describes the introduction of retrospective rating as being "designed primarily to help the stocks recapture large risks".<sup>39</sup> One of the features of prospective rating was the comparative advantage that it gave to the insurer currently on risk since, especially if they had been the employer's insurer for a number of years, they had actual knowledge of the claims experience. As well, there were technical differences in the manner in which expense loadings were recognised in the retrospective rated plans, compared to prospective rating, particularly in respect to brokers and agents. In place of the traditional 17.5 percent brokerage or agents fee, broker's commission was reduced under retrospective rating, on a graduated scale according to premium amount, from 12.5 percent to 6 percent. Not surprisingly, the move to retrospective rating was made over the strong protests of brokers and agents. The level of annual premium necessary for employers to qualify for retrospective experience rating was such that it would only be available to around five percent of all employers, although this employer group accounted for more than 65 percent of total premium income. This compared to the qualifying premium for prospective experience rating that meant that it was potentially available to around 20 percent of employers who accounted for around 80 percent of total premium income.<sup>40</sup> This small group of employers (the top five percent) was, and still is, the traditional fierce battleground for insurance underwriting.

### **Current Australian Practice**

Workers' compensation ratemaking methodology is an extremely complex exercise. Some of the basic elements have already been canvassed above. However, before turning to the claims for experience rating, some further details on the nature of the form of experience rating that operates in Australia should be given. As with many other aspects of Australian federalism, there is a substantial commonality of overall approach, but one that masks quite significant – if not at times, fundamental – differences in approach. The major division is between the highly structured retrospective rating approach operative in Victoria and New South Wales, the prospective rating regime in Queensland, the bonus and penalties arrangements in South Australia and a greater smorgasbord of experience rating approaches in the privately underwritten jurisdictions. The short description that follows traces the approach taken in Victoria and New South Wales, the two jurisdictions which collectively provide coverage for around half of all Australian employees.<sup>41</sup>

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<sup>39</sup> Herman and Anne Somers, *Workmen's Compensation: Prevention, Insurance and Rehabilitation of Occupational Disability*, New York: John Wiley, 1954 at 107.

<sup>40</sup> *Ibid*, pp 107-8.

<sup>41</sup> The technical aspects in the following account draws upon the paper presented to the 5<sup>th</sup> Institute of Actuaries of Australia, Accident Compensation Seminar at Nara, Queensland in November 1994 by two actuaries from Trowbridge Consulting, Rod Hoskinson and Julie Evans. The paper was published as R Hoskinson and J Evans, "Workers' Compensation Rating Systems", *Proceedings of the Fifth Accident Compensation Seminar*, Sydney: Institute of Actuaries of Australia, 1995, 396-438.

The general approach taken in Victoria and New South Wales involves a blending, through the use of a formula, of two premium rates. The first is a standard or “prior” rate that involves an estimate of the appropriate rate, independently of the employer’s claims experience in the year of cover under consideration. The second is an experience rate, namely a premium rate estimated using the employer’s experience including that in the year of cover under consideration. In this sense the experience rate adjustment is a retrospective one in that the premium charged for a particular year of cover depends on the experience during that year.

However the devil does lie in the detail. First, there are issues as to what is included or excluded in what constitutes claims costs. In the Victorian system<sup>42</sup> claims costs encompass claims reported in the year of review (regardless of the year of accident), payments to date on those claims and case estimates as to the outstanding claims costs on these claims. Excluded claims costs include those relating to journey claims and common law claims payable under the former WorkCare scheme. Secondly, there is an overall smoothing process, that goes by the name of ‘F-factors’,<sup>43</sup> designed to rescale the claims costs as measured for each employer so that they sum to the value of the scheme’s claims costs as actuarially assessed for premium rating. The F-factors allow for the development of the reported cost of claims lodged, incurred but not reported (IBNR) claims, the expenses of administering the claims and the scheme and trends in scheme costs. As well, elements of claims costs excluded from the measurement of employers’ claims costs (for instance, journey claims in Victoria) are also dealt with through F-factors and are thus redistributed across all employers.

Thirdly, the standard and experience rates are blended using a formula that gives varying degrees of recognition to each rate depending on the ‘credibility’ of the employer’s experience. ‘Credibility’ amounts to a numerical assessment of statistical significance of the employer’s claims experience. This is crucially a function of size. Therefore a greater dependence is placed on the experience rate and correspondingly less on the standard rate, as the size of the insured risk increases. This credibility adjustment insulates a small employer from a seismic jump in premium as the result of a number of large claims. While in New South Wales the industry rate is used as the standard rate so that there is a return to the industry rate during each premium year assessment, in Victoria there is ongoing recognition in the standard rate of previous performance. For larger employers there will be a move over time (in either direction, depending upon claims experience) from the industry average rate.

### **Why Have Experience Rating?**

As canvassed above, in respect to the introduction of experience rating into ratemaking methodology in the United States, there were three major arguments for such a move. These have not radically changed over time. The first can be expressed in a number of ways, but involves the issue of fundamental equity between different employers whose enterprises fall within the same manual rate class or industry group.

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<sup>42</sup> It should be noted that, following a review of the premium system by external consultants, A T Kearney and Pricewaterhouse Coopers, there will be significant changes to premium methodology in Victoria to be phased in over the next three years.

<sup>43</sup> Some commentators are unkind enough to refer to them as ‘fudge factors’.

One form of expression is that it is unfair and unjust that two employers are ascribed the same premium rate where the claims costs emanating from their respective business operations are grossly different. The recognition of this fact through differentiated premium rates, mediated through some form of experience rating mechanism, can be regarded in terms of rewarding moral virtue. In a more modern sense, it may be seen as an expression of the ‘user pays’ principle that can be seen in a range of spheres of modern life, where services, that were once priced on an undifferentiated basis, such as water consumption, now have a usage costing applied.

The second argument, that it allows a more effective means of competition between insurers, through being able to differentiate more sharply between employers in terms of the price of the insurance product being offered, is one that has contradictory resonance in contemporary Australian workers’ compensation. On the one hand, the move to centralised underwriting in Victoria, South Australia and New South Wales in the mid to late 1980s (joining the traditional state fund in Queensland) has meant that a competitive private underwriting market does not exist in schemes covering the overwhelming bulk of Australian workers. Therefore this argument is quite moot. However, on the other hand, there is continuing agitation by the insurance industry to return the current state monopoly funds to private underwriting. The National Competition Policy framework has provided another battering ram for the insurance industry in this quest. However, the periodic recurrence of financial instability and substantial price volatility within the private insurance industry has had a corrosive effect upon their claims to be superior managers in this area. The demise of HIH Insurance, the ongoing revelations from the HIH Royal Commission and general instability in the general insurance industry has probably put back on indefinite hold the prospect of the insurance industry’s snatching of this holy grail.

The third argument concerns the beneficial effect of experience rating upon achieving safer workplaces. On this view the premium system can serve as the herald of a powerful financial message, the result of which will be to spur employers to institute risk management and other activities to prevent or reduce the incidence and severity of injuries, and perhaps illnesses, in their workplaces. This is an extremely widespread view that has, over time, almost taken on the status of a self-evident truth. It is seldom questioned and has become something of an article of faith within workers’ compensation agencies.

Strong support for the positive effect of experience rated premiums for prevention was given in two Industry Commission reports in the mid-1990s, one on workers’ compensation and the other on occupational health and safety. The Industry Commission in its 1994 report on ‘Workers Compensation in Australia’ stated that “[t]he preventive incentives involved in experience rating mean that employers will try to improve their safety performance in order to lower their premiums.”<sup>44</sup> The report went on to acknowledge some difficulties with this form of financial incentive. These included the fact that “experience rating creates few incentives to improve health and safety performance [for small business]”, that “[e]xperience rating is also unlikely to work as a good incentive mechanism for the prevention of occupational

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<sup>44</sup> Insurance Commission (Report No 36) *op cit*, p 65.

diseases” and that it may encourage “claim suppression rather than actual risk reduction.”<sup>45</sup>

The Industry Commission returned to the subject the following year, in its 1995 report on ‘Work, Health and Safety’. Its tone was now more upbeat and the caveats or difficulties aired in the earlier report were either very muted (as in the regard to small employers) or gone. The 1995 report stated that “[t]he cost of workers’ compensation and the way insurance premiums for workers’ compensation are set can influence the actions taken at the workplace to prevent injury and disease.”<sup>46</sup> Furthermore, the report claimed that:

[t]he evidence from the United States suggests that there is a strong link between the level of workers’ compensation premiums and workplace health and safety. These studies also find that experience-rated premiums are a powerful inducement to business to invest in safety.<sup>47</sup>

It is perhaps time to turn to this evidence or at least its major exhibit.

### **The Empirical Record**

For a concept that has been so confidently promoted, there is surprisingly little in the way of hard quantitative evaluation. Even a strong supporter of experience rating, Professor John Burton has noted that:<sup>48</sup>

The empirical studies of experience rating do not provide consistent support for the theory. Chelius and Smith (1983), for example, did not find evidence that experience rating reduced the frequency of injuries. However, later studies, including Ruser (1991) and Worrall and Butler (1988), concluded that experience rating does matter. In a recent, comprehensive review of empirical studies on the impact of experience rating, Butler (1994) provided qualified support for the latter finding.

#### *Butler study*

The 1994 Butler study<sup>49</sup> mentioned by John Burton was also the prize exhibit of the 1995 Industry Commission report in its reference to United States evidence of “a strong link between the level of workers’ compensation premiums and workplace health and safety”. In view of the prominence given to this study, it is worthy of closer examination.

First, it should be noted that the study does not constitute a ‘comprehensive review of empirical studies on the impact of experience rating’ (such analysis as there is of

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<sup>45</sup> *Ibid* pp 65-66.

<sup>46</sup> Insurance Commission (Report No 47) *op cit*, vol 1 p 179.

<sup>47</sup> *Ibid* p 180.

<sup>48</sup> J F Burton Jr, “Disabled Workers’ Compensation Programs: Providing Incentives for Rehabilitation and Re-employment” In J F Burton Jr, (ed) *1996 Workers’ Compensation Year Book*, Horsham PA: LRP Publications, 1995, 104 at 104.

<sup>49</sup> R J Butler, “Safety Incentives in Workers’ Compensation”, *Workers’ Compensation Monitor*, No 5 (September/October 1994), 10.

previous studies is in extremely general terms and only occupies three or four paragraphs of the article), but is rather a metatheoretical attempt to provide a more sophisticated framework for viewing the effects of experience rating. Butler's chief concern is to argue for moving from a 'naïve' to a 'sophisticated' model of experience rating. The naïve model, as formulated by Butler, is a series of lineal linkages whereby increases in workers' compensation statutory benefits → increased cost to the firm via experience rating → change in employer behaviour (safety effect) → improvements in safety and decrease in claims frequency and duration → reduction or moderation in workers' compensation costs. Butler, correctly, sees the fundamental flaw in this model, which has the effect of invalidating the approach, as being its one-dimensional view of the world in only regarding 'firms as active, calculating, and economically responsive entities, while everyone else involved in workers' compensation is viewed as passive, docile and entirely unaffected by economic incentives'. His alternative 'sophisticated' model introduces a number of other influences and effects that may flow from increased costs to firms from experience rating and from increased statutory payments to employees.

The element of Butler's article that was seized upon by the Industry Commission was his attempt to correlate the relationship between workers' compensation costs as a percentage of payroll and workplace death rates over the period 1947 to 1987. This involved a regression model in which the 'dependant variables were death rates and the explanatory variables were workers' compensation costs as a percentage of the payroll, a time trend variable, the aggregate US unemployment rate as a measure of business cycle activity, and a variable to capture the impact of the National Commission on State Workmen's Compensation Laws'. After controlling for these factors, Butler concluded that 'a ten percent increase in workers' compensation costs per payroll results in a two to five percent decrease in the death rates'.

There are grave difficulties in supporting this conclusion given the range of highly significant variables that were not controlled in Butler's regression analysis.<sup>50</sup> Among these are changes in technology in industry leading to greater mechanisation, automation and even robotisation removing some dangerous elements of employment, changes in industrial structure and employment (eg the rust-belt phenomenon in certain industry sectors and regions such as the steel industry in Ohio and Pennsylvania and the huge decline in employment in areas with a high death rate such as the Appalachian coal industry) and moves to outsource areas of risk to sub-contractors who may be outside of the workers' compensation system. As well, there is no attempt to account for the effects of occupational health and safety initiatives through both national and state OSHA. Further reflection could provide additional significant features of the American industrial and workers' compensation environment which would need to be controlled in order to reach a conclusion as to the effectiveness of experience-rated premiums with which one could rely upon with any degree of confidence.

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<sup>50</sup> Contrary to the assertion in the Industry Commission report, there was no attempt to control changes in industry mix and the impact of occupational health and safety regulation.

### *Experience rating and workplace safety*

There is a great need for some methodologically sophisticated empirical research work to evaluate properly the effect of pricing initiatives on scheme operations, including employer responses to achieving safer workplaces. However, even in the absence of such work, there are a number of reasons why experience rating has inherent limitations in constituting a generalised vehicle for injury and illness prevention.<sup>51</sup>

### Claims as a proxy for the incidence of injury and illness

The first is not so much a limitation of experience rating itself, but of the manner in which its effects are described. That is the use of claims data as a proxy for injury and illness data. While most people in the field appreciate the distinction, there is a danger that the two notions (ie claims data and injury/illness data) can become conflated and that claims figures can be taken to be the real measure of the incidence of injuries and illnesses. This conflation can sometimes even be seen in the annual reports of some workers' compensation bodies, particularly in the form of tables expressing the 'incidence of work related injury and illness' and 'industry incidence figures'.<sup>52</sup> The expression of claims figures as incidence figures becomes even more misleading in jurisdictions where the application of excess periods means that large numbers of small injury and illness cases do not find their way into official statistical measures.

The danger of conflating claims data with injury/illness data is greatly compounded by the high level of under-claiming for compensable conditions. Both Australian and United States studies indicate that a high proportion of compensable injuries and illnesses (that is, work-related injuries or illnesses within the definitional bounds of the workers' compensation statute suffered by persons falling within the statutory definition of 'worker') do not find their way into the workers' compensation system and hence into the claims statistics. The claiming rate tends to be even worse amongst certain groups,<sup>53</sup> for certain types of injuries and among areas of precarious employment where there is often well founded fears of victimisation and dismissal.<sup>54</sup> In a survey by the Australian Bureau of Statistics for the New South Wales WorkCover Authority of 8,800 randomly selected employed persons, it was found that 53 percent of workers who indicated that they had suffered a work-related injury or illness in the previous twelve months had not claimed workers' compensation benefits. Almost half of those non-claimants did not seek any form of treatment, presumably due to the minor nature of the injury or illness. However, 50.6 percent of these non-claimants did seek avenues of treatment and compensation outside of the

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<sup>51</sup> See generally, T G Ison, "The Significance of Experience Rating", (1988) 24 *Osgoode Hall Law Journal* 723.

<sup>52</sup> The New South Wales WorkCover Authority has consistently adopted this practice in its annual reports; see p 14 of the current annual report (2000-20010).

For instance adolescent workers. A study of claims of adolescent workers in Minnesota found that only a third of eligible claims actually translated into lodged claims; D Parker, W Carl, I French and F Martin, "Characteristics of adolescent work injuries reported to the Minnesota Department of Labor and Industry", (1994) 84 *American Journal of Public Health* 606.

<sup>54</sup> Michael Quinlan and Claire Mayhew, "Precarious Employment and Workers' Compensation", (1999) 22 *International Journal of Law and Psychiatry* 491.

workers' compensation system. These included Medicare (43%), regular sick leave entitlements (39.6%), personal private health insurance (15.6%) and federal social security benefits (7.4%).<sup>55</sup>

The situation gets much worse when it comes to workers' compensation claims data on occupational disease. This situation is sufficiently well known that two examples pertaining to occupational cancer that were provided to the Industry Commission's 1995 occupational health and safety inquiry will suffice to reinforce this point. A study by the Queensland Division of Workplace Health and Safety found workers' compensation data in Queensland underestimated the incidence of work-caused cancer by 97 percent<sup>56</sup>, while the National Occupational Health and Safety Commission's (NOHSC) submission stated that the National Data Set (NDS) (which is derived from workers' compensation data) encompassed only five percent of the known cases of mesothelioma.<sup>57</sup>

It is generally thought that, whatever the difficulties and limitations of workers' compensation coverage of work-related injuries, and particularly disease, there is a basically good coverage of occupationally-related traumatic fatality. This is one of the reasons why the Industry Commission endorsed the Butler study since fatality studies "constitute strong evidence of the level of workplace health and safety."<sup>58</sup> However, the second work-related fatalities study, published by NOHSC in December 1998, provides some pause for this belief.<sup>59</sup> This found that a very significant proportion of work-related fatalities were not covered by either the occupational health and safety agency, or the workers' compensation system. The variation in this level of non-coverage was considerable between jurisdictions, ranging from 24 percent of the total in Victoria to 40 percent in Queensland. Work-related deaths that were covered by the occupational health and safety agency were generally low with this coverage ranging from 20 percent in Queensland to 44 percent in Victoria. The greatest coverage was by the workers' compensation system. In respect of working deaths, the cases covered by the workers' compensation system ranged from 47 percent in South Australia to 66 percent in Victoria. The period covered by the study – 1989 to 1992 – was one where Australian workers' compensation systems covered commuting injuries and fatalities. Since 1992 a number of jurisdictions have legislatively divested themselves of such coverage. The study found that when working and commuting deaths were aggregated that the coverage by the workers' compensation system ranged from 51 percent of the total in New South Wales to 70 percent in Victoria.

### Area of occupational disease

The second critical limitation of experience rating lies in the area of occupational disease. The abysmally small level of many types of disease cases being represented

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<sup>55</sup> Australian Bureau of Statistics, *Work-related injuries and illnesses, New South Wales, October 1993*, ABS Catalogue No. 6301.1, 1994.

<sup>56</sup> Insurance Commission (Report No 47) op cit, vol 2, p 544.

<sup>57</sup> *Ibid*, vol 1, p 8.

<sup>58</sup> *Ibid*, vol 1, p 181.

<sup>59</sup> National Occupational Health and Safety Commission, *Work-related traumatic fatalities in Australia, 1989 to 1992*, Sydney: NOHSC, 1998.

within workers' compensation claims data has already been addressed in the previous section. However, even if the data issues concerning occupational injury could be overcome or wished away so that there was complete data capture of all such conditions – which is obviously a Pollyannish notion – there is still the stark reality that, putting aside all other objections, experience rating has almost nothing to offer as a vehicle for achieving safety in this area.

One of the defining features of many occupational diseases is the latency period, often amounting to fifteen to twenty years or even longer, between time of exposure and the recognition of the existence of the disease. Consequently, a process based on retrospective claims information cannot provide a safety impetus in areas which are subject to these long time lags. While this feature of temporal lags is, by itself, almost fatal to the claims of experience rating, there are other aspects of the process, particularly that of ascribing causation or responsibility to particular employment, that represent further compounding (and confounding) aspects. The real life realities of workforce dynamics and the complexities of exposures mean that the administrative task of attempting retrospectively to reconstruct the nature of employment and exposure, in order to determine which employer/s should be debited with the claims costs arising from the disease, is a fanciful prospect and an impossible – and indeed pointless - undertaking. For instance, stevedores comprise one of the major occupational groups that have contracted mesothelioma, largely as the result of exposure on the wharves during the 1950s and 1960s. This was a period before company employment in which engagement was through the 'pick-up' system. Consequently a stevedore could have a number of different employers in the course of a single week and even multiple employers in the course of a day.

These difficulties are not simply a legacy of the past. The continuing impetus of labour market change in the direction of greater 'flexibility', including increasing levels of casualisation of employment and multiple job holding, means that workforce dynamics are becoming more complex. Similarly, the ever-increasing number of chemicals and other substances that are used in various aspects of the production process and the ongoing cycle of introduction of new products and processes means that the complexities of exposures are also increasing.

#### Maintaining a sense of perspective

The essence of experience rating is that of sending a price signal to employers that will result in remedial action. If that is to operate then this signal must be of sufficient volume as to attract attention and to demand action, particularly when there is a range of other incoming signals relating to other business costs. That is, the potential prevention incentive from workers' compensation premiums needs to be kept in perspective. As a starting point, the average premium rate across the various Australian jurisdictions ranges from around one to three per cent of payroll. Now, of course, this is simply an average and there will be businesses whose premium rate diverges significantly from this average figure due to the nature and level of the risks associated with the industry within which they operate. The point that proponents of experience rating make is that this mechanism provides a means through which, over time, businesses will reach their 'true risk' rate.

The problem, however, is that given the fact that most business is small business attainment of the 'true risk' rate will take, absent other factors, an enormous period of time. At the time of the debate around the introduction of experience rating in the United States it was calculated that (in 1916) a Massachusetts plant of ten employees, would, if it conformed with the general average of industries in the State, have one fatal accident in 120 years and an accident involving two weeks' lost time every three years. For a plant of such a size in a low hazard industry the likelihood of such a lost-time event would be once in ten years.<sup>60</sup> In present-day Australia these time horizons for small business are likely to be even more attenuated.

However, there is a further complicating feature that also relates to the size of the employer. If manual rates or industry rates were abandoned altogether and insurance premiums were determined solely on the basis of claims experience, the consequences, in terms of financial volatility for small business, would be horrendous and the system unworkable. Although, as the above figures show, the likelihood for small businesses of fatality and injury claims are low,<sup>61</sup> the financial consequences may be extreme. Consequently, experience-rating systems, as explained above, have introduced into their design 'credibility' or sizing factors in order to avoid excessive financial volatility. The result is that, in practical terms, the impact of experience rating is essentially limited to larger sized employers. In other words, given the highly skewed distribution of employment in terms of size of enterprise, the percentage of employers who are significantly affected by experience rating is relatively small. The Industry Commission, in its 1994 workers' compensation report, looked at Victoria, which, at the time, the most highly focused experience rating system in Australia. It found that only one per cent of employers had more than 40 per cent of their premiums determined by their recent claims experience, while for 86 per cent of employers individual claims experience affected less than 2.5 per cent of their premium.

If the rationale of experience rating is correct, namely that recognition of costs will result in remedial action, then there should be an even more powerful driver for action than direct claims costs. That is, the indirect costs to the enterprise of occupational injury and illness is significantly higher than the direct compensation costs. These indirect costs include the disruption to the production process, the costs of recruiting and training replacement personnel and the like. There is some debate as to the precise dimensions of these indirect costs vis-à-vis direct compensation costs, but it is generally recognised that they are quantitatively far more significant. The Industry Commission cited the survey by Andreoni<sup>62</sup> for the International Labour Organisation, which summarised earlier overseas work, finding that the ratio of direct compensation costs to the indirect (non-compensation) costs of injury and illness ranged from between 1:1.58 to as high as 1:20 with a median of 1:4. A Queensland study by Mangan<sup>63</sup> found that the non-compensation costs of industrial accidents in

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<sup>60</sup> Cited in Woodward, *op cit*, p 365

<sup>61</sup> These are, of course, overall statistical averages. They say nothing of the likelihood in an individual case. Abnormal clusters are a well-known statistical phenomenon.

<sup>62</sup> D Andreoni, "The Cost of Occupational Accidents and Diseases", *Occupational Safety and Health Services*, no 54, Geneva: International Labour Office, 1986.

<sup>63</sup> J Mangan, *The Economic Cost of Industrial Accidents in Queensland*, University of Queensland, Department of Economics, Discussion Paper no 123, July 1993.

Queensland were at least six times greater than the compensation costs. If the spur to the achievement of safer workplaces is simply that of a cost calculus then it should follow that the indirect costs of injury and illness should provide a far greater incentive for safety than that which would be achieved through the pricing mechanism.

### Effects upon claims management

This is not to say that experience rating is without behavioural effects. There is now a body of evidence which indicates that it does affect the manner in which claims management is conducted. The question is whether, and if so to what extent, this behavioural impact goes beyond controlling claims to that of producing safer workplaces. Perhaps the most extensive work on this issue has been undertaken in Ontario which introduced two experience rating programmes in 1984, one for the construction industry (CAD-7) and the other (NEER) which was applied voluntarily on an industry-by-industry basis.<sup>64</sup> More general application of experience rating to Ontario employers as a whole came in 1990. This situation meant that there could be comparisons (particularly in the 1984-1990 period) between employers who were and those were not subject to experience-rated premium regimes.

The issue of the impact of experience rating came to prominence in 1987 when the all party Standing Committee on Resources and Development of the Ontario legislature had referred to it for investigation into an apparent anomaly in the mining industry which experienced, in that year, a record number of deaths while at the same time lost-time injuries had shown a continued dramatic decline for the previous five years. The Committee reported after 21 days of hearings and investigations. It found that over this five-year period (1982-1987) the ratio of medical aid or no lost-time injuries had been increasing since 1982 in the mining industry while it had been decreasing in other industries in Ontario. It concluded.<sup>65</sup>

The Committee, having carefully considered this issue, believes that the mining companies, in an attempt to reduce the number of lost-time accidents (and therefore lower their WCB assessment rates) are now reporting injuries of greater severity as 'health care only' (no lost-time) claims instead of 'lost-time' claims. The Committee further believes that it is this shift in recording accidents which has resulted in the declining lost-time injury rate.

The Ontario Workers Compensation Board also conducted and commissioned a number of studies into the effects of experience rating. Among the findings from these studies was that around a fifth of employers who belonged to an experience rating plan also had private short-term disability cover and allowed injured workers to use that plan rather than report injuries to the Workers Compensation Board. As well, about 14 per cent employers had policies that encouraged workers with mild or less severe injuries to take paid time off and only report these injuries to the Workers Compensation Board where the worker did not return to work within a few days. Perhaps more significant for scheme operations was the finding that experience-rated

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<sup>64</sup> L Jolley, "Shortcomings in Workers' Compensation Systems" in T J Larsson and A Clayton (eds) *Insurance and Prevention*, Stockholm: Swedish Work Environment Fund, 1994, 213 at 216.

<sup>65</sup> *Ibid*, p 216.

employers had substantially greater propensity to dispute and appeal claims decisions. Such decisions were correlated with claims cost with a \$1,000 increase in claims costs increasing the probability of appeal by 4.1 per cent.<sup>66</sup>

## 5. OTHER APPROACHES

In the introductory section of the paper a contrast was made between the direct approach, characteristic of occupational health and safety regimes and the more indirect approach that is generally associated with economic incentives. However, economic incentives can be applied in a quite targeted fashion to achieve, in a very cost-effective manner, the goals of injury and illness prevention. Such approaches have perhaps had their most developed form in the French system. Two such initiatives, which show alternatively a stick and carrot approach to the application of economic incentives, will be briefly illustrated.

Following the *Employment Injuries Act 1946*, France moved from a private insurance system to a national scheme for occupational injury and illness, under which all enterprises in the private sector are insured with the Caisse Nationale de l'Assurance Maladie (CNAMTS). The CNAMTS operates through regional offshoots, the Caisse Regionale de l'Assurance Maladie (CRAM). One such example is the CRAM Nord-Picardie, based in Lille, covering a labour force of about four million in about 120,000 companies. This particular Caisse has a staff of some 20 consulting engineers and 40 inspectors (safety engineers) and conducts about 20,000 inspections a year. As in other Caisse the injury prevention activities are governed by regional tri-partite Industry Committees that can increase and decrease a firm's premium on the basis of non-compliance with recommendations for workplace improvement contained in a report by a prevention inspector.

The mechanism is that an inspector, in making a report upon a workplace injury or fatality, can stipulate in writing a measure or series of measures to be undertaken by the employer that would either prevent or mitigate the effects of a similar accident in the future. The nature of this required action has to be calibrated to the economic capacity of the enterprise and can be appealed on the basis of the reasonableness of the proposed action. If an employer does not appeal, or the appeal is not upheld, the remedial action must be undertaken within a reasonable period, one that is usually stipulated in the inspector's notice. If the required action is not undertaken within this period the employer becomes liable for a 25 percent premium penalty. This can be increased to 50 percent after six months of resistance and become a 200 percent penalty after a further six months recalcitrance.<sup>67</sup>

As well, since 1988, the CNAMTS has developed a programme of contractual arrangements to promote the prevention of occupational injuries and illnesses in small to medium enterprises. Originally the cut-off figure was for firms with less than 300 employees; however, this has subsequently been lowered to 250 employees. This

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<sup>66</sup> D F Hyatt and B Kralj, "The Impact of Workers' Compensation Experience Rating on Employer Appeals Activity", (1995) 34 *Industrial Relations*, 95.

<sup>67</sup> Discussions conducted by the author with prevention inspectors with the Caisse Regionale d'Assurance Maladie d'Ile-de-France (CRAMIF) in September 1999.

system involves a national or regional framework agreement concluded between representatives of an industrial sector and the CNAMTS or CRAM respectively. Such an agreement sets out the specific areas for which a targeted loan may be granted. An enterprise may then approach the CRAM for their area for a prevention contract. If such a request is accepted, a formal risk assessment is conducted and a detailed contractual arrangement between the enterprise and the CRAM is entered into. This sets out very precisely the required actions of both parties, including those which give rise to a payment and a calendar of actions and payments. The CRAM can make advances, by way of loan monies, of between 15 percent and 70 percent of the total investment of the prevention contract. There is a regular process of review by the CRAM. If, at the end of the period, the enterprise has complied with the contract the loan monies can be converted into a grant, while failure to comply requires repayment of the monies with interest. An evaluation of this programme in the Dunkirk region in 1992 showed that the reduction in work injury costs, following prevention contracts, represented a return on investment in excess of 25 percent. As at 30 September 1995 there were 7,915 contracts in existence for a total of 1,462,482,895F.<sup>68</sup>

## 6. EPILOGUE

This paper is an attempt to set out, and to analyse critically, a range of issues concerning economic incentives for achieving the prevention of occupational injuries and illnesses. It is presented as a basis for discussion and achieving a more productive debate over the role of economic incentives in this area. The motivation has been the increasing, almost doctrinaire, championing of the cause of ever more sharply focused experience-rated premium regimes as the preferred basis for achieving this end. Such a position appears, increasingly, to be becoming an article of faith within compensation agencies.

It is not contested that experience-rated premiums do have an effect upon compensation *claims*. However, claims statistics are simply a proxy for injury and illness statistics. What is contested is the facile assumption that experience-rated premiums result in action to achieve safer workplaces, that is a reduction in accidents, injuries and illnesses rather than simply a reduction in claims.

The various shortcomings of experience rating as a mechanism for achieving safer workplaces does not mean that it should be necessarily abandoned as a feature of scheme design. There is, in fact, a principled case for experience rating in terms of some form of user-pays principle. However, the various issues of a debate between experience-rating and alternative formulations, such as community rating, lie outside the ambit of this paper. The issue is simply that, if the goal of accident prevention is to be a serious objective of workers' compensation schemes, then experience-rated premiums are a very blunt and problematic instrument to achieving this end and may result in other, undesirable, effects.

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<sup>68</sup> See Jan Krunland and Tore J Larsson, "The Prevention of Occupational Injuries – A New Case for the Swedish Model" in Larsson and Clayton, *op cit*, 70-82.

It is argued, therefore, that in looking at economic incentives for prevention, attention needs to be directed to measures that are more direct in impact and more closely targeted to delivering such incentives. For that reason it is argued that approaches, such as those adopted within the French CRAM are worthy of investigation. For instance, the advantage of the approach to premium modification for non-compliance with a direction for workplace safety improvement is that it is directly targeted to remedial action that will immediately result in greater workplace safety, rather than being a vague financial signal that does not indicate the cause of the problem or the nature of a response. It also is independent of any compensation claim and therefore does not provide any incentive towards claims suppression. Similarly, the targeted loan programme represents a highly focused means of achieving very direct workplace safety improvements with small business, whereas, because of sizing modifications, experience rating has practically no impact at all with small business.