The Deterrent Effects of OHS Enforcement
A Review of the Literature

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The Deterrent Effects of OHS Enforcement – A Review of the Literature

1. Abstract

Work-related injury and death in Australia, as elsewhere, remains a perennial issue of public concern, especially in view of the high toll it exacts on the nation’s social and economic wellbeing. Systemic failure persists even though OHS laws enacted to protect people at work from hazards associated with their employment have been in place for more than a century. In examining the role of enforcement in OHS regulation, this review briefly outlines the main significance of OHS as a public policy issue; and provides an overview of the evolution of the legal architecture and inspectorial practices that have historically underpinned OHS laws in Australia, along with more recent changes in these areas. This is followed by an evaluation of quantitative and qualitative studies that have sought to determine the deterrent effect of OHS enforcement. The main findings are that deterrence operates in a more mediated manner than presumed by traditional deterrence theory; that the certainty of inspection appears to be the most important component of deterrence and that specific deterrence is greater than general deterrence. It is also apparent that there are many gaps in our understanding of the role of enforcement in Australia in promoting improvements in OHS performance. A number of implications arising from the research findings are drawn that may assist in enhancing enforcement activity.
2. Australia’s Occupational Health and Safety Performance

An estimated 689,000 workers were injured in Australia during 2006 (ABS 2006: 10). For a workforce of 10.16 million, this equates to approximately one in every 15 workers being injured as a result of their employment (ABS 2007: 6). Deaths caused by work related injury and disease are also very high, although determining the precise number remains problematic due to serious data limitations. Nevertheless, the most recent official estimate placed the number at between 4,887 and 8,168 a year (Access Economics 2003: 8). To put this in perspective, more people die from work related causes than from road crashes, breast cancer, heart failure, skin cancer and suicide (ABS 2009: 11).

The human and economic costs associated with work related injury, disease and death are very substantial. The human costs are felt most keenly by those involved and their families. In the case of workers this may include permanent disability, ongoing pain and suffering, loss of employment and employment prospects; while for families it is hard to imagine anything more distressing than the loss of a loved one killed as a result of work. The economic costs involved are also staggering. The annual cost of work related injury, disease and death is now estimated at $57.5 billion, which in 2005-06 was equivalent to 5.9% of Australia’s GDP (ASCC 2009: 2).

The epidemic nature of the problem suggests the possibility that non-compliance with occupational health and safety laws is widespread, particularly as most work related injuries, diseases and deaths are preventable where safe systems of work are adopted and effectively managed (Worksafe Australia 1996: 14). The actual extent of non-compliance, however, is unclear due to the absence of baseline data. In its 1995 report, the federal government’s Industry Commission attempted to estimate the general level of non-compliance in Australia. The approach it adopted involved measuring the number of breaches for which sanctions were imposed by OHS Inspectors as a proportion of the total number of inspections conducted over a three year period to June 1994. The finding it reported intimated that non-compliance
was about 12% (Industry Commission 1995, 2: 398). The Commission was quick to point out, however, that this figure only provided “an indicative lower estimate of the level of non-compliance” since the use of sanctions as a measure “ignores the number of breaches which receive an informal sanction, receive no sanction, or go undetected” (Ibid.).

More recent enforcement data suggests that the prevalence of non-compliance is indeed much higher. With the exception of New South Wales for which there was insufficient data, there were 326,648 inspections conducted in Australia during the three year period to June 2006. These inspections gave rise to 130,589 Improvement Notices and 17,917 Prohibition Notices being issued, resulting in a non-compliance rate of 45.5% (WRMC 2008: 16). As with the Commission’s assessment, this estimate excludes any consideration of all those breaches which escaped detection or failed to attract sanctions, and thus understates the actual level of non-compliance. A further source of understatement arises from inter-jurisdictional differences in the issuing of Notices. In some jurisdictions one Notice may cover several breaches whereas in others one Notice is issued for each breach (Ibid: 14-15). On the other hand, to the extent that enforcement activity was concentrated on higher risk activities a downward adjustment would also need to be considered.

Whatever the case, in the absence of data derived from a well designed compliance survey based on a representative sample of workplaces is obtained the uncertainty that surrounds the level of non-compliance with OHS laws in Australia will persist. Nevertheless, it is sufficiently clear from what evidence is available that non-compliance is a serious and ongoing problem.
3. The Evolution of Australian OHS Laws

Failure to meet standards enshrined in OHS laws cannot, of course, be considered in isolation. Non-compliance needs to be understood in the context of the political framework and legal architecture on which these laws are predicated along with the regulatory discourses and practices that have shaped their administration.

In Australia, British laws have long provided the template upon which state and territory governments have sought to address the criminality of OHS violations. In turn, the early British statutes were a belated response to the industrial revolution and the emergence of the Factory system of production. The earliest legislation regulating factories was introduced in 1802 (Bartrip and Burman 1983: 15), but it took another four decades before the British parliament, with the enactment of the *Factories Amendment Act of 1844*, adopted the first minimum safety standards for the guarding of specified machinery operated in textile factories covered by the Act (*Factory Act 1844*: s XXI). An earlier attempt in 1833 had been thwarted as a result of fierce opposition by manufacturing interests and their parliamentary representatives (Bartrip and Burman 1983: 17-18). Notwithstanding this, the 1833 Act did result in one change of historic importance; namely, the introduction of an Inspectorate to oversee the administration of the legislation and, where necessary, initiate court proceedings for alleged offences (*Factory Act 1833*: s XVII).

The significance of these statutes, however, was more symbolic than real. They were limited in their application, in that they were confined to the textile industry, and what protection they did afford was consequently confined to a limited number of workers. In addition, their scope was exceedingly narrow in terms of the hazards addressed. While unguarded machinery was a ready formula for the loss of life and limb, employment in the mills also exposed workers to other serious risks including hearing loss and chronic diseases such as ‘brown lung’. Hardly surprisingly, the available statistical evidence indicates that the early *Factory Acts* had no substantive effect in reducing work-related deaths and injuries (Bartrip and Burman 1983: 53).
Their symbolic value lay in the fact that they constituted recognition of the need for state regulation of industry to safeguard the lives and limbs of working men and women from the untrammelled operation of laissez faire capitalism. But as the state was closely aligned with furthering the economic interests of the propertied classes, particularly those associated with the rapidly expanding industries based on manufacturing, concessions concerning the health and safety of working people were piecemeal and generally inadequate.

With the rapid growth of British industry the application of factory legislation was subsequently expanded from 1864 onwards through a widening of the definition of what constituted a factory and by the explicit coverage of other trades and industries (Gunningham 1984: 54). This was accompanied by a perceptible shift in the position of manufacturing interests in relation to factory legislation, from one of widespread opposition to growing acceptance of this form of state intervention. As one observer has pointed out:

> despite the rhetoric of laissez-faire, a growing number of manufacturers had come to recognise that factories legislation was not necessarily antithetical to their interests, and that state intervention ... was not necessarily incompatible with higher productivity (Ibid. 54-55).

With the passage of further amending legislation, an attempt was made to rationalise the law in line with recommendations from a Royal Commission set up in 1875 and culminated in the enactment of the *Factory and Workshop Act* in 1878. It was this consolidated statute that formed the legislative framework underpinning subsequent British legislation for almost another century.

It also provided the foundations for the adoption of health and safety legislation by Australian jurisdictions. In contrast to Britain where a national approach prevailed, responsibility for health and safety laws in Australia resided initially with the individual colonies. Later, following Federation in 1901, it became primarily the
constitutional domain of the states and territories. Victoria, the most industrialised jurisdiction, was the first to enact legislation with the passage of the *Supervision of Workrooms and Factories Statute* in 1873, which contained a mere six clauses and was confined in its application to factories and workrooms that employed 10 or more workers. Its provisions were limited to working hours for female workers, and with ensuring that the workplace was warm, clean, adequately ventilated and complied with sanitary requirements (*Supervision of Workrooms and Factories Statute* 1873). It was not until 1885 that a more extensive Victorian adaptation of the British legislation, in the form of the *Factories and Shops Act*, was passed (*Factories and Shops Act* 1885).

The emergence of an organised workers’ movement, the extension of the right to vote and the formation of the Australian Labor Party helped pave the way for introduction of factory legislation elsewhere. This occurred in the course of the industrially tumultuous 1890s and later during the first decade of the new century at a time when a new, more conciliatory and interventionist, approach to the resolution of industrial issues was high on the public policy agenda following the bitter conflicts between employers and trade unions that had characterised class relations during the 1890s. South Australia, in 1894, was the first jurisdiction to emulate Victoria, followed by New South Wales and Queensland in 1896, Western Australia in 1904 and Tasmania in 1910 (*SA Factories Act* 1894, *NSW Factories and Shops Act* 1896, *Qld Factories and Shops Act* 1896, *WA Factories Act* 1904, *Tas Factories Act* 1910). In Australia, as in Britain, the statutes were the subject of periodic amendment during the ensuing decades. However, the basic architecture of the legislation remained intact, and unchallenged, until the 1970s and 1980s.

The 1970s witnessed a major turning point in the evolution of occupational health and safety law in Britain and Australia, as well as in many other industrialised nations. Much of the impetus for change emanated from the unprecedented rate of technological change during the post World War II era. Many new and unregulated work-related hazards had been created, while those that were regulated were
frequently in need of updating to keep pace with the growth of modern industry and scientific knowledge. There was also a renewed interest in OHS issues as a result of increased militancy by trade unions, particularly from the late 1960s onwards, and this too contributed to the drive for a new approach to the regulation of health and safety at work.

In addition to its piecemeal development and often excessively prescriptive nature, the legacy of this old style factory legislation included limited coverage of the workforce, fragmented administration, ineffective sanctions for breaches, and a failure to provide for the involvement of workers in decision-making on health and safety issues (Gunningham 1984: 58-59). It was against the background of this antiquated legislative framework that the recommendations of the 1972 Robens report found such a receptive audience. The widespread support for its proposals was further enhanced because it offered something for all the major stakeholders. For employers it offered the prospect of a more unified, yet flexible, legislative structure and less red tape. For governments it provided the opportunity for the development of a comprehensive and integrated approach to deal with an increasingly important public policy issue. For trade unions, it afforded a platform for the democratisation of decision-making on workplace health and safety issues; both at the shop floor level through the provision for worker health and safety representatives with statutory powers, and in terms of direct union involvement in standard setting. Despite trenchant criticisms that highlighted its many limitations – most notably concerning its understanding of the causes of work related injury and mortality, the supposed commonality of interests between workers and employers, the emphasis it placed on self regulation, and its views on enforcement - (Woolf 1973: 89-94, Matthews 1984: 19-20) the Robens approach heralded the modernisation of OHS law.

At the centre of the Robens style legislative framework, enacted in Britain in 1974, was the general duty of care obligations owed by duty holders. The concept of a general duty of care in relation to occupational health and safety was based on the
common law principles enunciated in 1937 by the Privy Council in *Wilson and Clyde Coal Co. v English* (1937 AC 57). The overarching principle involved, most clearly expressed in the case of employers, was a comprehensive responsibility to ensure “so far as reasonably practicable” the health, safety and welfare of their workers and other people affected by their undertakings (Health and Safety at Work Act 1974: ss. 2 (1) and 3 (1)). This was complemented by a more streamlined approach to the administration of the legislation and the availability of new tools for Inspectors, in the form of Improvement and Prohibition Notices, for dealing with breaches. In addition, workers were provided with the opportunity to be involved in decisions concerning their health and safety at work through health and safety representatives and by participation in joint worker-management committees.

In Australia a partial, albeit inadequate, attempt to embrace a Robens style approach to OHS legislation was reflected in the *Industrial Safety, Health and Welfare Act* adopted by the South Australian Labor government as early as 1972 and subsequently by the Tasmanian Labor government in 1977 and the Victorian Liberal government in 1981 (Matthews 1993: 24). However, it was not until the 1980s that a more systematic overhaul based broadly on Robens’ principles took place; initially in New South Wales in 1983 with the *Occupational Health and Safety Act* and then more comprehensively through Victoria’s 1985 *Occupational Health and Safety Act* and South Australia’s 1986 *Occupational Health, Safety and Welfare Act*, followed by the other jurisdictions. By 1991 all Australian jurisdictions, including the federal government, had instituted legislation based, to a greater or lesser extent, on the Robens model (Johnstone 2004: 73-74). A major point of political controversy at the time was the extent of statutory provision for involvement by workers (Tilbook 1986: 13). Labor governments, other than New South Wales, opted for joint worker-management committees and health and safety representatives with extensive powers, often including the right to stop dangerous work, whereas with more conservative governments the preference was for committees either without health and safety of representatives or, where they were a feature of the legislation, with
limited powers (Industry Commission 1995: 263-290). There was also widespread opposition by employers to increased fines for OHS breaches (Matthews 1984: 3).

Since the mid 1980s the process of legislative change has been ongoing with all jurisdictions seeking to update their OHS statutes. In the main, this process has been incremental in nature although in some cases it has also involved a recasting of the legislation, most notably in New South Wales in 2000 and Victoria in 2004 following major reviews conducted in those states (NSW Parliament 1998, Maxwell 2004). Enforcement strategy during this period also underwent increasing change and, as was the case elsewhere (Kagan 1989: 108-110), was on occasion the subject of political intervention. This was most noticeable in South Australia where during the 1990s enforcement was substantially wound back, especially as regards prosecutorial activity, in favour of a more deregulatory approach (Purse 1999: 471-473).

More recently, there has been a major push for the ‘national harmonisation’ of OHS laws in Australia as a means of overcoming the jurisdictional inconsistencies which have accumulated over the last century or so. This development has been driven by the corporate sector and is part of a broader agenda to realign business regulation in Australia on a national basis (BCA 2008: 10-13), with a correspondingly reduced role for state and territory governments. Far-reaching decisions by the High Court in 2006 and 2007 ([2006] HCA 52, [2007] HCA 9) have dramatically extended the constitutional reach of the federal government vis a vis the states and territories and provided an added impetus to this agenda. There has also been increasing political support for a shift in the locus of business regulation, especially in view of the growth of national markets and Australia’s increasing integration into the global economy. Under the Rudd Labor government this has been articulated through its espousal of ‘cooperative federalism’, one of the goals of which is the creation of “a seamless national economy unhampered by unnecessary state duplication, overlaps and differences” (Australian Parliament 2008: 1).
Within this emerging new regulatory framework demands for standardised OHS laws rapidly assumed priority status. This subsequently resulted in an historic inter-governmental agreement in July 2008, whereby the states and territories agreed to adopt and implement uniform model OHS legislation by December 2011 (COAG 2008: 5.2.5). However, despite the importance of the tectonic shift in the locus of regulation, it is apparent from two companion reports commissioned by the federal government that the legal architecture of the uniform OHS legislation will remain firmly anchored within the Robens tradition (Stewart-Crompton et al 2008, 2009).

4. The Problematic Nature of OHS Enforcement

Legislation that is inadequately enforced, or not enforced at all, can subvert the purposes for which it was enacted. Yet inadequate enforcement has characterised Australian OHS laws since their inception. Although OHS offences are criminal in nature they have widely been regarded as a subspecies of white-collar crime and consequently treated as less deserving of disapprobation.

The issue of whether breaches of OHS laws in Australia should be categorised as criminal offences at all remains a contentious topic and one of the perennial fault lines in OHS policy. The nation’s largest employer association, the Australian Chamber of Commerce and Industry, in a 2008 submission on OHS legislation expressed the view “that OHS breaches generally should be subject to civil rather than criminal penalties” (ACCI 2008: 60). By contrast, trade unions subscribe to the view that the criminal status of OHS violations provides an “important deterrent and symbolic function” that is essential to “ensuring that occupational health and safety is treated as the serious social and economic concern that it is” (ACTU 2008: 52-53). A not dissimilar view is generally shared by Australian governments (Stewart-Crompton et al 2008: 92). As expressed by the South Australian government, breaches of OHS legislation “should be dealt with solely as criminal offences ... in order to confirm the credibility and deterrent effect” (SA Government 2008: 53) of the legislation.
The genesis of the disjunction between OHS legislation and its enforcement can be traced to the early British Factory Acts. Factory legislation may be viewed as an attempt to ameliorate class antagonisms in Britain in the early decades of the 19th century. Its advent took place against the backdrop of a burgeoning industrial revolution at home and political revolution in France that had culminated in the overthrow of the old ruling order. It was a time of profound economic and political dislocation accompanied by far reaching social consequences that were in the process of radically transforming the organisation of work.

Factory legislation sought to impose legal constraints on the economic interests of manufacturing employers, initially in the textile industry; particularly in relation to hours of work and working conditions affecting children and women, and subsequently to working men and then workers in other industries. In doing so it created a tension between regulation, intended to protect the working population, and the unbridled pursuit of profit, on which economic growth was predicated. As working conditions in the textile mills were often appalling and non-compliance with the limited safety measures afforded by the law widespread, any concerted efforts at enforcement through prosecutorial means:

would have involved a degree of collective criminalisation which extended far beyond some morally opprobrious minority. Indeed, it would have embraced many employers of considerable status, social respectability and, particularly in the wake of the 1832 franchise reform, of growing political influence (Carson 1979: 51).

This tension was essentially resolved through the ‘conventionalisation’ of OHS crime. This was tantamount to the quasi decriminalisation of OHS offences, a process whereby this category of crime was overshadowed, and largely negated, by its subordination to the requirements of employers in the otherwise highly respected endeavour of entrepreneurial activity (Ibid: 38). More particularly, the
conventionalisation of OHS violations meant that non-compliance by employers with their legal obligations became increasingly accepted “as something which is normal, to be expected and not sufficiently egregious to be subjected to the full rigour and stigma of the criminal law” (Johnstone 2000: 141).

This was reflected in various ways through the architecture of factory legislation and its administration. In the 1844 Act, for example, coverage was confined to workers employed in designated textile factories (Factory Act 1844: s LXXIII). A further limitation was that the safety obligations placed on employers to fence certain categories of machinery were confined to children and young persons, to the exclusion of adults (Ibid: s XXI). In addition, procedural provisions were available that enabled an employer, who could establish due diligence, to shift responsibility for offences committed onto “any Agent, Servant, or Workman” where the breach occurred “without his Knowledge, Consent, or Connivance” (Ibid: s XLI). Moreover, court proceedings under the legislation had to be initiated, in most cases, within two months of the alleged offence (Ibid: s XIV); a requirement that placed additional strains on an inadequately resourced Inspectorate.

The conventionalisation process was also accompanied by a discourse in which work-related injuries and deaths attributable to OHS violations were rationalised as the inevitable and unintentional by-products of industrial development rather than, in many cases, the products of criminal activity.

The low level of maximum fines for most offences and the actual fines imposed by the courts were further factors that contributed to the creation of a pervasive perception that OHS offences were not intrinsically criminal in nature. By way of illustration, less than 10% of fines imposed on employers for breaches of the 1844 Act were £5 or more during the period from 1845 to 1855 while, in four of those years, more than 50% of fines were £1 or less – the so called ‘sovereign remedy’ (Peacock 1984: 205). More generally, the average fine for offences fell sharply from approximately £4 to £1, between 1834 and 1876 (Bartrip and Fenn 1983: 210).
It was in this context that the UK Inspectorate, following an early burst of prosecutorial enthusiasm, shifted towards a more conciliatory approach rather than enforcement as the preferred means of securing compliance. Prosecution remained as part of the inspectorial armoury but was increasingly viewed as an enforcement measure that should be used sparingly or as a last resort. This realignment took place from the late 1830s onwards and by the 1860s was firmly entrenched, with the Inspectorate having “gradually renounced the practice of prosecuting breaches of the factory acts to the point that it became a relatively unusual policy instrument” (Bartrip and Fenn 1980: 183).

The realignment of the administration of OHS legislation on a footing that largely eschewed prosecution resulted in the development of methods of inspection which sought to promote compliance through advice, encouragement and deferential admonition. This shift towards a ‘persuasion’ based model of regulation by the Inspectorate constituted not only an acknowledgement of the power disparity that characterised their relationship with employers but also, in consequence, a tendency that tolerated breaches of the law (Carson 1979: 55). Hardly surprisingly, the institutionalisation of the persuasion model served to consolidate and perpetuate the conventionalisation of OHS crimes.

The contemporary relevance of the “patterned beliefs about the function of an inspector” (Carson 1970: 395) embodied in the persuasion model is due to their extraordinary persistence as much as their early historical significance. These beliefs which took on a hegemonic position during the 19th century also came to dominate inspectorial practice in the 20th century as well. Then, as earlier, prosecution was almost invariably used as a last resort. By way of illustration, a study that investigated OHS offences by 200 employers in south-eastern England during a 4 ½ year period in the 1960s found that of 661 enforcement decisions taken only 10, or 1.5%, resulted in prosecution (Ibid: 391). The remaining 651 were the subject of notification to employers of the need for remedial action in 74.5% of cases, urgent
remedial action in 11.9% cases, indirect or direct threats of prosecution in 6.3% of cases and no formal action in the remaining 5.5% of cases (Ibid.).

The ongoing emphasis on the use of non-threatening means of OHS regulation as opposed to the more widespread use of criminal sanctions was also endorsed by the Robens inquiry. One of the main themes espoused by Robens was that of encouraging ‘self regulation’ by employers (Robens 1972: 80). Within this framework “any idea that standards generally should be rigorously enforced through the extensive use of legal sanctions is one that runs counter to our general philosophy” (Ibid.). This perspective was underpinned by a view that criminal sanctions for OHS violations should be limited to those of a “flagrant, wilful or reckless nature” (Ibid: 82). In effect, this approach sought to restrict prosecution to those circumstances where the nature of the offence was either grossly negligent or intentional. In the case of the latter this would have entailed a return to some form of mens rea as the guiding principle rather than that of strict liability (as qualified by considerations of reasonable practicability), while in the case of the former it would have precluded the use of prosecution in all those cases of employer indifference or ineptitude that fell short of the gross negligence standard. In both cases this would have had the effect of devaluing the seriousness of OHS crimes.

The Robens endorsement of the persuasion model of enforcement was not without its critics. A later, Australian, inquiry was scathing in its assessment of the Robens enforcement philosophy:

Rarely has there been a greater apology for lawless behaviour on the part of employers, than this sentence from Robens. Apparently it did not occur to the Robens Committee that there might be a link between failure to enforce the law and “carelessness, oversight” etc. It is our view that when a worker is killed, the people responsible should be brought to justice and punished (Matthews 1984: 20).
In Australia, a very similar approach was adopted towards the enforcement of the OHS obligations placed on employers under factory legislation. In the most extensive study to date, involving an examination of offences under Victoria’s factory legislation covering the period from 1885 to 1980, the same reluctance to apply criminal sanctions was evident (Johnstone 2000: 123-130). While both the maximum, and actual, fines were undoubtedly low and the attitudes of the courts towards these offences – mainly concerned with unguarded machinery - presented further obstacles to effective enforcement it was also clear that the Inspectorate had internalised the conventionalised view of OHS crime. As in Britain, a modus operandi based on education, advice and persuasion prevailed as the defining feature of the Victorian Inspectorate’s operations. It was aptly described in 1983 by one of its leading advocates - the Head of Victoria’s Department of Labour and Industry, and himself a former Chief Inspector of Factories and Shops - as a “kids’ glove” style of enforcement (Prior 1985: 56), in which inspectors view “the legislation they administer as being remedial rather than punitive in nature, ie, they are there to improve the conditions of work, not to make the employer or employee suffer penalties for breaches of the law” (Ibid: 54).

This outlook was by no means confined to the Victorian Inspectorate. It was widely shared by other Australian jurisdictions. The use of prosecution as an enforcement tool varied substantially, with New South Wales and Queensland being the most active and Tasmania the least. A study commissioned by the National Occupational Health and Safety Commission which examined enforcement patterns during the 1970s through to the mid 1980s found that prosecutions were rarely pursued (Braithwaite and Grabosky 1985: 24). This study also surveyed the attitudes of the chief, or senior, executives in 19 inspectorates, with 74% indicating that a large number of prosecutions would be “a sign that a regulatory agency is failing in its job” (Ibid: 71). After taking other limitations into account, such as the inadequate nature of the legislation and the under resourcing of the inspectorates, the researchers concluded that the main reason for this reluctance to enforce OHS laws was “a
regulatory policy backed by the regulatory ideology which sees little or no place for prosecutions” (Ibid: 74).

The late 1960s, the 1970s and, more particularly, the 1980s also witnessed a revitalised interest by Australian trade unions in occupational health and safety (Matthews 1993: 12-15). This included wide ranging campaigns on workplace hazards such as asbestos and repetition strain injury. More generally, the trade union agenda sought better protection for workers based on improved OHS standards, comprehensive legislative reform and effective enforcement. This agenda also had the effect of directly challenging the conventionalisation of OHS violations of the law.

In addition to worker representation, a key aspect of the legislative reform framework advocated by unions concerned the level of fines for offences. As had historically been the case, fines had remained glaringly inadequate well into the 1980s. In the high risk building industry in New South Wales the average fine in 1982-1983 was $182. Across the border in South Australia, the average fine for a breach of that state’s OHS legislation was $201 (Braithwaite and Grabosky 1985: 14, 20). The low level of fines was all the more egregious given that prosecutions were almost invariably confined to circumstances where there had been serious injury or death.

Two South Australian cases highlight this state of affairs. In June 1979 a worker employed by a metal parts manufacturer had both thumbs crushed as a result of having to work with unguarded machinery. This was not the first such injury that had occurred in this particular factory, and its management had previously been directed by inspectors to ensure the machinery in question was guarded at all times when in use. Nevertheless, on conviction the employer was fined $160. The second incident occurred in September 1981 when four workers fell to their deaths as a result of the collapse of a tower they were constructing. Their employer was subsequently prosecuted and convicted for breaching its duty of care, and fined a
total of $250 (Matthews 1984: 4-5). The trivial nature of fines such as these for serious injury and death only served to bring the law and its administration into disrepute.

The union push for the overhaul of OHS laws during the 1980s was largely supported by reform minded Labor governments and culminated in the replacement of the old style factory statutes by Robens style legislation. The incorporation of significantly higher maximum penalties for OHS offences was a hallmark feature of the modernisation process that got under way from the middle of the decade, with all Australian jurisdictions subsequently moving in this direction. In the case of South Australia, for example, the maximum fine by a corporate employer for a breach of the new legislation enacted in 1985 was $50,000, and $100,000 for a repeat offence, compared to the pre-reform maximum of $500 (SAPD 1986: 929-30).

Although characteristically uneven, there was an upward trend in maximum fines continued over the course of the next two decades. In 1995 the maximum penalty for corporate offences under state and territory legislation ranged from $50,000 to $250,000 (Industry Commission 1995, 2: 379). By 2008 the range of maximum fines across Australia had risen to between $100,000 and $1,020,780 (Stewart-Crompton et al 2008: 104). In addition, some jurisdictions had adopted provisions for higher maxima in cases where aggravating factors, such as reckless conduct or multiple fatalities, are involved. The highest statutory maximum, enabling a fine of up to $1,650,000 to be imposed in the event of reckless conduct by a corporation causing death, was contained the New South Wales legislation (Ibid.).

Increases in maximum fines are an important consideration in de-conventionalising OHS crime. However, the average fines dispensed by the courts have largely negated this tendency. In its 1995 report the Industry Commission found that the average fine for an OHS conviction in Australia during the period 1990-91 to 1993-94 was typically less than 10% of the maximum (Industry Commission 1995, 2: 394). In Victoria, a study that investigated OHS offences between 1983 and 1999 reported
that the average fine was approximately 21% of the maximum (Johnstone 2003: 201). Low average fines for OHS convictions remain as an ingrained feature of the system. In 2008, the averages fines in New South Wales, Victoria, Western Australia and Tasmania were less than 10% of the maximum while in Queensland and South Australia they were, respectively, 12.9% and 23.2% (Stewart-Crompton et al 2008: 104, WRMC 2008: 17). One implication of the persistence of excessively low average fines is the need for a review of sentencing guidelines in order that they are better “tailored to suit OHS prosecutions” (Stewart-Crompton et al 2008: 127).

Apart from higher maximum penalties, the modernisation of OHS legislation in Australia also provided Inspectorates with new enforcement tools in the form of Improvement and Prohibition Notices. The availability of the former typically enables inspectors to require employers, or other duty holders, to implement remedial measures to address any suspected legislative breaches within a specified timeframe, while the latter provides a statutory means for stopping work that involves an immediate or imminent risk to health and safety. In addition, in all jurisdictions, non-compliance with Improvement and Prohibition Notices constitutes an offence.

Notices are the most commonly used OHS enforcement tools. Although administrative in nature they are regarded as providing a useful means of dealing with many OHS violations. Moreover, the costs incurred in complying with Notices may frequently be higher than fines imposed by the courts in the event of prosecution. An important limitation associated with their use, however, is that they focus on the risks created by particular hazards rather than the underlying OHS management system and, therefore, tend to deal with the symptoms as opposed to the root causes of non-compliance with OHS laws. It may also be the case that the administrative nature of these enforcement tools obscures the fact they are used to deal with criminal behaviour. This in turn may serve to reinforce the conventionalisation process, although any potential for this is likely to be much more
limited where Notices are used in the context of inspection campaigns that target specific hazards or high risk employers.

Infringement Notices – on the spot fines – are a more recent addition to the Inspectorial enforcement armoury in most Australian jurisdictions. The rationale for their adoption is that “they offer a level of immediacy and efficiency that may be lacking in other enforcement provisions” (Gunningham et al 1998: iii). However, the circumstances under which they can be used, the offences covered and duty holders to whom they can be issued varies considerably between the jurisdictions, as too does the level of fines involved (Stewart-Crompton et al 2009: 257-258). Where they have been used, it has been to deal with offences considered to be at the lower end of the scale – sufficient to warrant a fine but not a prosecution (Ibid: 257).

In conceptual terms, Notices are part of what has become known as the enforcement pyramid. The enforcement pyramid is frequently couched in terms of ‘responsive regulation’ in which, typically, the conduct of an employer is taken into account when considering what form of regulatory response is appropriate for dealing with breaches of the law (Ayres and Braithwaite 1992: 35-41). Its origins stem from more broadly based research concerned with the regulation of business that emerged in the early 1990s. At the base of the pyramid, in the OHS context, are the traditional elements of the persuasion model such as advice and encouragement. Further up the pyramid are administrative sanctions, including Infringement, Improvement and Prohibition Notices. Higher still, there are court based sanctions including prosecutions which on conviction result in fines and possibly incarceration, although a custodial sentence for OHS violations has yet to be imposed in Australia.

When initially conceived it was envisaged that the enforcement pyramid would provide a framework for graduated enforcement ranging from relatively minor admonitions through to high level sanctions. Thus if advice and persuasion failed to promote compliance enforcement would escalate iteratively to successively higher
levels within the pyramid. Alternatively, where it appeared that an employer was willing to comply there was no need to take further enforcement measures. One drawback with this approach in relation to OHS is that it assumes that inspectors interact sufficiently regularly with individual employers to be able to make an accurate assessment of their willingness to comply, a situation which is rarely the case given the limited number of inspectors (Gunningham and Johnstone 1999: 124). A more fundamental issue is that the extent of the risk to health and safety should constitute the primary consideration in the selection of enforcement tools to be used. This is not to suggest that the attitude of an employer towards compliance with the law should be ignored but rather that it should be viewed as an important but nevertheless secondary consideration. A further problem is that sanctions available at the upper levels of the pyramid are inadequate to serve the purposes for which they are intended (Johnstone 2004: 177). In other words, the pyramid is too “bottom heavy” (Gunningham and Johnstone 1999: 124).

At an operational level there is now widespread acceptance of the enforcement pyramid by Inspectorates throughout Australia (Victorian Government 2008: 72). The apparent attraction of the pyramid, however, is not that it provides an approach that requires each step to be completed before proceeding to the next rung but that it endorses the use of a flexible suite of regulatory tools for dealing with OHS breaches. In principle, this facilitates the use of the enforcement tool that best matches the level of risk associated with a particular breach. In practice though, the emphasis has continued to concentrate on the use of those measures contained at the lower level of the enforcement pyramid, particularly advice and persuasion. As acknowledged by the Victorian government “the predominant mechanism for securing compliance is persuasion” (Ibid.).

More generally, while there was a significant increase in OHS inspections across Australia in the five year period to June 2007, the enforcement picture remains mixed. Over this period the annual use of Improvement Notices increased marginally, from 51,452 to 53,898 and in the case of Prohibition Notices from 6,444
to 6,678. By contrast, the number of Infringement Notices issued declined noticeably from 1,820 to 1,521 a year. The situation with prosecutions resulting in convictions was even more dramatic with a fall of 25% - from 735 in 2002-03 to 551 in 2006-07. Although the number of convictions increased significantly in South Australia and marginally in Queensland and Tasmania there was a marked decline in New South Wales and Victoria and a less pronounced fall in Western Australia. Overall, of the 114,183 inspectorial interventions recorded in Australia for 2006-07 less than 0.5% resulted in convictions for OHS violations (WRMC 2008: 16-17).

This enforcement pattern indicates there had been a modest increase in the use of administrative sanctions but that the use of criminal sanctions to address breaches of OHS legislation remains at an inordinately low level. While there were significant differences between jurisdictions the overall result had the effect of reinforcing the conventionalised status of OHS crime. If this is to change a new approach will be required.

5. Enforcement and Deterrence

Deterrence is a fundamental feature of statutory regulation based on the pervasive, deeply ingrained view that the availability of sanctions and their application serve as an integral component of crime prevention and increased compliance with the law. Deterrence has a long-standing pedigree within European criminological thought that dates back at least to the 18th century. The Milanese aristocrat and enlightenment thinker, Cesare Beccaria, was one of the first to place deterrence, rather than retribution, at the centre of discourse surrounding crime and punishment. In doing so, he argued that the purpose of deterrence was “to prevent the offender from doing fresh harm to his fellows and to deter others from doing likewise” (Beccaria 1764: 31).

Deterrence also figured prominently in the work of the British philosopher and penal reformer, Jeremy Bentham. As with Beccaria, Bentham viewed deterrence in
utilitarian terms. Bentham’s utilitarianism was based on the principles of pleasure and pain, which were depicted as the key determinants of human behaviour (Bentham 1789: 11). The overriding goal of utilitarianism was encapsulated in the maxim of ‘the greatest good for the greatest number’. This goal applied equally to individuals and governments. In relation to the latter he argued that the “business of government is to promote the happiness of the society, by punishing and rewarding” (Ibid: 74). The utilitarian view also stressed that the “punishment should be adjusted in such manner and to each particular offence, that for every part of the mischief there may be a motive to restrain the offender from giving birth to it” (Ibid: 168).

In conceptualising deterrence, reference is customarily made to specific deterrence and general deterrence. Specific deterrence refers to the effects of detection and punishment on an individual offender in curbing criminal behaviour whereas general deterrence alludes to the effect of punishment meted out to others on potential offenders as a means of promoting compliance with legal requirements (Wikstrom 2008: 352). More generally, it is argued that where general and specific deterrence are effectively deployed, compliance with legal obligations may be internalised. In the case of OHS deterrence is intended to facilitate the incorporation of compliance by employers “as an organisational norm” (McQuiston et al 1998: 1022).

Among the key assumptions underpinning deterrence theory are the notions that behaviour is freely undertaken, rational and based on self interest that, implicitly or otherwise, encompasses an assessment of the advantages and disadvantages of committing a crime. The greater the costs compared to the benefits, the greater the deterrent effect. During the late 1960s and early 1970s this calculus readily facilitated the development of the expected utility theory of deterrence usually associated with the Chicago School of neoclassical economics (Becker 1968, Stigler 1970).
A major refinement to deterrence theory has been the recognition that the perception of deterrence itself can make a significant difference to any deterrent effect, over and above that associated with the likelihood of detection of criminal offences and the imposition of sanctions. If the community in general and potential offenders in particular believe that the probability of detection and punishment are more likely than not, the deterrent effect is likely to be greater than otherwise would be the case; an assessment bolstered by findings from research on traffic enforcement (Zaal 1994: 23).

Nevertheless, a number of the assumptions on which deterrence theory is based have attracted criticism. This includes the notion that individuals act in accordance with strictly rational norms of behaviour, a presumption which has been depicted as overly simplistic (Carrabine et al 2004: 35). Crimes of passion and those which occur on the spur of the moment are examples of offences that often do not fit within the framework of rationality supposed by deterrence theory. This raises doubts regarding the extent of the theory’s relevance as far as individuals are concerned. Critics also argue, again in relation to individuals, that it is the probability of detection and punishment, rather than the level of the concomitant penalty that forms the basis of deterrence (Bagaric 2009: 137) – a view which can be, as will be shown later, extended to OHS offences.

By contrast it can be argued that corporations, rather than individuals, form more suitable subjects for testing the viability of deterrence theory as they are widely regarded as exemplars of rational economic behaviour with finely honed profit maximising skills, which in turn has given rise to the notion that corporations are “amoral calculators” (Pearce and Tombs 1990: 424-426). In addition, as the corporation is the business structure most favoured by employers in Australia it constitutes the most appropriate organisational form for the examination of deterrence within an OHS context. This is all the more so given that OHS crime is predominantly corporate crime.
In crucial respects OHS provides less than fertile ground for examining the impact of deterrence theory, at least as traditionally formulated, due to the low level of detection of breaches and the inadequate level of sanctions applied where breaches are detected. In other words, the regulation of OHS suffers from a “deterrence gap” (Gunningham and Johnstone 1999: 188). It was for precisely this reason that the Industry Commission, in its 1995 review of Australian OHS arrangements, urged the adoption of “measures to increase the probabilities of detecting and penalising non-compliance with the duty of care, and to raise penalties for such non-compliance” (Industry Commission 1995, 1: 107).

Nonetheless, there has been an increasing body of research on enforcement and deterrence over the last two decades; both internationally and, to a lesser extent, in Australia. To date, the studies that have investigated the impact of deterrence on OHS have relied on two main strands of evidence - qualitative data obtained from surveys and questionnaires, and quantitative data derived from econometric analyses. It must be emphasised, however, that these studies have focused almost exclusively on safety issues as opposed to occupational health. This is a particularly serious limitation as estimates of work-related fatalities due to occupational health causes are between 9 to 15 times higher than those attributable to safety issues (Access Economics 2003: 8).

6. Specific Deterrence

OHS enforcement activity is premised on the assumption that increased compliance results in lower injury rates. There is little doubt that enforcement increases compliance, as is demonstrated by evidence from a longitudinal study of Occupational Safety and Health Administration (OSHA) enforcement in the US custom woodworking industry between 1972 and 1991. Initial inspections revealed that 42% of firms were in compliance with the relevant standards, but by the second round of inspections this had increased to 65.7% even though the fines issued to noncompliant employers were quite low (Weil 1996: 635). Increased compliance,
however, does not guarantee corresponding reductions in injury rates. Compliance is a necessary but not sufficient condition for improvements in workplace safety performance. A study of the linkages between enforcement, compliance and injury rates in US manufacturing firms between 1974 and 1978, for example, found that a doubling of the enforcement rate would increase compliance by 25.8% but only reduce the lost-workday injury rate by 2.5% (Bartel and Thomas 1985: 21-22). The significance of this finding was not so much its statistical dimension, which was quite modest, but rather the confirmation that the nexus between compliance and injury rates is very much a mediated relationship - an important dynamic that needs to be borne in mind when considering potential deterrent effects associated with OHS enforcement.

Quantifying the effectiveness of specific deterrence is inherently problematic. Despite the availability of large datasets, exponential increases in computing power over recent decades and improvements in statistical methods there are many difficulties that confront econometric studies which attempt to clarify the nexus between OHS enforcement, compliance and injury rates. Problems of data quality and methodological issues concerning the need to control for confounding variables have been ongoing dilemmas. The wide disparity in statistical techniques employed in the different studies, as well as differences in the underlying theoretical frameworks adopted, provide further complications. Consequently, as with other econometric studies concerned with OHS issues, there is always the possibility that the results obtained may be an artefact of the estimating procedures and inadequate theoretical foundations (Purse 2004: 602-609).

Despite the formidable obstacles involved there now exists a considerable but disparate body of research on the impact of specific deterrence on OHS compliance and injury rates. Most of this research is derived from US studies following the adoption of the federal *Occupational Safety and Health Act* in 1970. Its passage was the culmination of a fiercely contested struggle between business and organised labour, and continued to generate contention long after its enactment (Mendeloff
It was in this highly charged political atmosphere that the first studies were conducted.

One of the more innovative investigations during this period sought to estimate the impact of OSHA inspections for 1973 and 1974 by comparing lost-workday injury rates of manufacturing firms inspected in March or April with those inspected in November or December in each of those two years (Smith 1979: 153). Employing this bifurcated approach it was hypothesised that, if OSHA inspections had a positive impact, firms inspected earlier in the year should have lower injury rates than those inspected later in the year, since the in-year injury rates for this latter ‘control’ group would not have been affected by OSHA inspections (Ibid: 152). It was on this basis that lost-workday injury rates were regressed against OSHA inspections, controlling for previous year injury rates, changes in employment, industry classification and firm size (Ibid: 151). The results obtained implied that there had been a decrease in the lost-workday injury rate of approximately 16% for inspections conducted early in 1973 (Ibid: 168). For the corresponding 1974 inspections, however, the results reported were much lower and not statistically significant (Ibid: 157). One explanation offered for this latter finding was that it was due to the targeting by OSHA of the most hazardous workplaces in the previous year and that thereafter OSHA inspections were the subject of diminishing returns (Ibid: 163).

Reports of a limited or negligible ‘OSHA effect’ also figured prominently in subsequent investigations based on this study design. A 1983 study which examined OSHA inspections for 1977 and 1978 concluded that there was no discernible impact on injury rates arising from these inspections (McCaffrey 1983: 144). A 1991 study that covered the years 1979 to 1985 reached similar conclusions. Although modest reductions in lost-workday injury rates were reported for some categories of employers (Ruser and Smith 1991: 221-224), the overall assessment was that “there is little evidence to suggest that OSHA inspections in the early 1980s were effective in reducing the lost-workday injury rate” (Ibid: 234).
These findings, however, were subsequently criticised for using estimating models that focused only on the short term, typically one year, impact of inspections on injury rates. This was highlighted in a 1990 study which found inspections had an ongoing impact of up to three years, and that consequently these earlier studies had underestimated the effect of OSHA inspections (Scholz and Gray 1990: 294-295). A further criticism was that the firms inspected earlier in the year tended to be those with higher injury rates thereby compromising the statistical validity of comparisons with those inspected later in the year (Gray and Scholz 1993: 184).

By contrast, a 1993 study that assessed the effect of OSHA inspections on a sample of 6842 large manufacturing firms reported highly significant findings. This study also covered the period from 1979 to 1985 but used a different methodology. The estimating equations employed regressed percentage changes in lost-workday injuries against various enforcement measures while controlling for employment levels and hours worked (Ibid: 192-193). Dummy variables for the year of inspection and the subsequent two years were also included. The enforcement measures used included the annual number of inspections, the annual number of inspections that imposed penalties for breaches of OSHA standards, and the annual number that did not. In an alternative formulation, the percentage change in lost-workdays was used as the dependent variable. In addition, tests on the various formulations were conducted in order to check for potential statistical bias including serial correlation in the dependent variable and the endogeneity of inspections (Ibid: 193).

The results obtained indicated that penalty inspections had the most substantial impact, even though the penalties involved were fairly small. Across the entire sample there was a modest 2% reduction in total injuries. For firms inspected and issued penalties during a given year, however, there was “a 22% decline in injuries over the following three years and a 20% decline in lost-work days” (Ibid: 198). Although impressive, these results almost certainly overstate the overall impact of enforcement activity. As the authors themselves acknowledged (Ibid: 200) their sample was comprised of large, frequently inspected firms and that, consequently,
the results obtained could not be directly extrapolated to smaller and less frequently inspected firms. Nevertheless, these results graphically illustrate the point that targeted enforcement activity can not only promote increased compliance but also make a significant contribution to the reduction of work injuries.

Comparable results were reported for a study which examined the impact of enforcement on lost time workers’ compensation claims rates, for 8929 employer accounts, in the US state of Washington between 1997 and 2000. An important feature of this study was that it was not confined to the manufacturing sector but also incorporated employers from a wide range of other industries, including agriculture, wholesale and retail trade, finance, insurance, services and government administration (Baggs et al 2003: 485-487). The sample was comprised of predominantly medium and smaller firms employing more than 10 workers (Ibid: 483, 493). Separate analyses were conducted for employers with ‘fixed sites’ and those with ‘non-fixed’ sites, such as may be found in the building and construction industry.

The regressions carried out were based on a Poisson model, an approach frequently used for dealing with count data such as the number of workers’ compensation claims. The quantitative relationship between claims rates and enforcement activity was determined by using a generalised estimating equations procedure, a technique that is utilised to identify and correct for serial correlation (Ibid: 485). After also controlling for previous claims rates and firm size, the coefficients obtained indicated a fall in claims rates of 22.5% for fixed site employers subjected to enforcement action, as opposed to 7.0% for those who were not. For employers in non-fixed sites the corresponding decreases were, respectively, 12.8% and 7.4% (Ibid: 490). These results were depicted as comparable to those obtained from Gray and Scholz’s 1993 study (Ibid: 491). Interestingly, inspections that were confined to consultation visits with employers were not associated with any decrease in claims rates during this period (Ibid.), a finding that was all the more salient because of federal congressional pressures at the time to redirect health and safety inspections away from
enforcement in favour of greater employer consultation (Ibid: 484). The overall conclusions reached, although qualified, were that inspections involving the threat of penalties reduce claims rates, and that “the magnitude of the decline in claims rates following inspections suggests that enforcement activity may trigger broader improvements in safety practices” (Ibid: 494).

Qualitative studies based on surveys and interviews are also consistent the view that there is a specific deterrent effect associated with enforcement activity. In a survey conducted for the UK’s Health and Safety Executive (HSE) published in 2006, 71% of respondent employers prosecuted for offences under the Health and Safety at Work Act indicated that the experience had encouraged them to take steps to improve their OHS management (Wright et al 2006: 3). In addition, 61% of respondent employers issued with Improvement Notices and 55% of those issued with Prohibition Notices reported that these enforcement actions had prompted them to make OHS improvements (Ibid.). This latter finding is somewhat counter intuitive given that Prohibition Notices are regarded as a more rigorous sanction than Improvement Notices for dealing with non-compliance. However, as pointed out by the authors “Prohibition notices tend to focus on specific improvements, whilst improvement notices also cover risk assessment and are more likely to cover management issues” (Ibid: 6). Although certainly plausible these findings can only be treated as indicative at best, since they are based on response rates of only 17.9%, in the case of prosecutions, and 10.9% for Notices (Ibid: 75).

In theory, prosecutions afford the best opportunity for assessing the specific deterrent impact of enforcement activity as they are regarded as providing the highest level of sanction for OHS offences. Paradoxically though, there has been a dearth of research on this issue. In the case of the US this is attributable to provisions of the Occupational Safety and Health Act which only allows for prosecutorial action against employers who have “wilfully or repeatedly” breached the relevant sections of the legislation (OSHA 1970: s.17). In spite of an absence of comparable restrictions to those in the US, the use of prosecutions for criminal
breaches of OHS legislation in Australia is not widespread. A similar situation is apparent in the UK (Wright et al 2004: 15).

To date, there have been only two Australian studies that have investigated the relationship between deterrence and the use of prosecution for criminal breaches of OHS legislation (McLean 1998 and Schofield et al 2009); and as noted earlier prosecutions are usually confined to breaches that have resulted in death or serious injury (Schofield et al 2009: 266). The results obtained from these studies, however, revealed conflicting conclusions; with one suggesting minimal impact and the other a strong deterrent effect. The only substantive point in common was a shared view that some employers had a tendency to blame the workers injured for the incidents that gave rise to prosecution (McLean 1998: 519, Schofield et al 2009: 272), an assessment which suggests a degree of denial as regards the extent of their legal obligations to take all reasonably practical steps to ensure safe and healthy workplaces.

The first of the two studies involved 20 employers prosecuted for offences in the early 1990s under Victoria’s Occupational Health and Safety Act 1985. Each of the convicted organisations was visited by the researcher, accompanied by an inspector, who interviewed senior managers to determine whether there had been subsequent improvements in OHS management (McLean 1998: 518). Six performance indicators – a documented health and safety policy, trained worker health and safety representatives, an effective joint OHS committee, professional OHS staff or in the case of smaller employers the use of OHS consultants, a functioning injury investigation process and a hazard investigation program – were used to assess whether improvements had been made (Ibid.).

The results obtained indicated that only 30% of the participating employers met all six performance measures, 45% met some while 25% were reported as failing to have had any of these measures in place (Ibid: 518-519). The study concluded that
“Very few of the organisations surveyed had any systematic approach for the management of health and safety” (Ibid: 520).

The second, more recent, study explored the responses of 22 New South Wales and 10 Victorian employers prosecuted following the enactment of new OHS statutes in 2000 and 2004 respectively (Schofield et al 2009: 266). In addition to remedial action intended to prevent any recurrence of the incidents that gave rise to the prosecutions there were a number of other responses. With the larger organisations this entailed improvements in their safety management systems and was “generally accompanied by increased resourcing for and a markedly sharper focus on OHS at the most senior levels of corporate governance” (Ibid: 269). In the case of the smaller firms, it was reported that none had any formal OHS arrangements in place prior to the incidents that led to their prosecution but that subsequently the services of OHS consultants had been utilised to establish management systems to prevent further incidents (Ibid: 270). On the basis of these findings, it was argued that there was “a strong association between prosecution and specific remedial action by employers to redress a wide variety of workplace circumstances and arrangements connected with serious injury and death” (Ibid: 274).

While the conclusions reached by these studies were clearly disparate they can, when considered together, be partially reconciled; in that the latter study unequivocally found specific deterrent effects among all of the participating employers while in the former it was apparent, despite the negative overall assessment, that 30% of the employers involved had implemented remedial measures consistent with a specific deterrent effect. It is also worth noting that the maximum penalty in Victoria during the course of the earlier study was only $25,000 (McLean 1998: 520) whereas when the second study was being conducted the maximum fine had increased to $900,000 in Victoria and was $825,000 in New South Wales (Vic OHSA 2004: s. 21, NSW OHSA 2000: s. 12). It may therefore be the case that these changes in the maximum fines available to the courts may have also contributed to the higher deterrent effect reported in the second of the two studies.
Thus, even though the evidence is mixed, on balance, it would appear that prosecution does have a specific deterrent effect, although further research on the issue is required before definitive judgments can be made.

This assessment complements the findings from the better designed US studies that non-prosecutorial enforcement can exert a specific deterrent effect which increases compliance with OHS standards and reduces injury rates, most particularly when inspections are accompanied by sanctions for non-compliance. In addition, it is clear that an increased probability of inspection plays a greater role in deterrence than the level of penalties imposed for breaches. Whether this would be the case if more substantial penalties were available is an open question. However, as has been pointed out by two leading US researchers “more dramatic penalties may indeed have large effects. Large fines ... get media attention that normal fines do not, and send strong signals about enforcement strategies” (Gray and Scholz 1991: 203). At the very least, access to substantially higher penalties should strengthen the specific deterrent effects of enforcement activity, though not necessarily in a directly proportionate manner as envisaged by standard deterrence theory.

7. General Deterrence

Whereas econometric investigations concerning specific deterrence have used firm, or plant, level studies those dealing with general deterrence have been based on industry studies.

The first of these studies used time series and cross sectional data to examine the impact of OSHA inspections and penalties on industry injury rates during the period from 1972 to 1975. This study, by Viscusi, was based predominantly on manufacturing industry, but other industries including construction were also covered (Viscusi 1979: 126). More particularly, the aim was to test whether OSHA penalties had the effect of stimulating increased investment in OHS and, if so, whether this subsequently reduced industry injury rates (Ibid: 117). The estimating
equations used controlled for several potential confounding variables; including various occupational characteristics, percentage changes in employment, weekly hours of work and overtime while dummy variables were used to capture industry specific and lagged effects (Ibid: 129). Measures were also taken to control for possible serial correlation bias (Ibid: 133). The results obtained suggested there was no statistically significant effect on industry injury rates (Ibid: 133).

Similar results were reported in a 1985 study which used a three equation model to estimate lost-workday injuries, non-compliance with OSHA standards and the impact of OSHA enforcement in manufacturing industry from 1974 to 1978 (Bartel and Thomas 1985: 10-11). While noting that increased inspections would improve compliance (Ibid: 20) the authors concluded that the nexus with injury rates was weak and lacking in statistical significance (Ibid.).

A follow-up manufacturing industry study by Viscusi covering the period from 1973 to 1983, however, resulted in a revised assessment of OSHA’s effectiveness. Part of the rationale for this study was that previous investigations had relied on industry averages in determining lost-workday injury rates which may have had the effect of masking any deterrent effect (Viscusi 1986: 568). In Viscusi’s reformulation, efforts were made to estimate the impact of current and lagged enforcement variables on the lost-workday injury rate and the total lost-workday rate, after controlling for potential confounders similar to those contained in the 1979 study (Ibid: 568-571). The results reported indicated that OSHA inspections generated a modest fall in the lost-workday injury rate of between 1.5% and 3.5%, accompanied by a more substantial reduction in the total lost-workday rate of about 5% (Ibid: 575-576). This latter finding suggested that the targeting of OSHA inspections had the greatest effect in reducing the incidence of more serious injuries (Ibid: 575). Although qualified, these findings supported the view that “OSHA’s effectiveness is stronger than that presented in most previous studies” (Ibid: 567).
Further backing for this assessment was provided by Scholz and Gray’s 1990 study. Using the same - much larger - sample of manufacturing firms, that formed the basis of their 1993 study, they reported OSHA enforcement activity over the period from 1979 to 1985 significantly reduced injury rates. As with Viscusi 1986 study they also found that the probability of inspection had a greater deterrent effect than the penalties imposed (Scholz and Gray 1990: 296). More generally, they concluded that for their sample “a 10% increase in enforcement would reduce injuries by around 1%” (Ibid: 302).

Though substantially lower than the impact attributed to specific deterrence, these results suggest a general deterrence effect, albeit modest, may also be associated with enforcement. Part of the explanation for the low level of general deterrence may be attributable to a lack of employer awareness of enforcement activity, which in turn is due to the limited publicity that enforcement receives. The 2006 HSE survey, referred to earlier, drew attention to this issue and a range of related factors. The type of enforcement, the size of the employer and the perceived relevance of the enforcement action were all important considerations in determining whether there was a general deterrent effect associated with enforcement activity (Wright et al 2006: 18). Larger employers were more likely to hear of serious incidents than their smaller counterparts and more likely to act on that information (Ibid.). Action was more likely to be taken where the type of business activity undertaken and the hazards involved were the same or similar to those of employers that had been the subject of enforcement; and less likely if a high level of safety management existed already or there was only a remote possibility of enforcement action (Ibid: 18-19).

Findings from a 2005 study into compliance with US environmental protection legislation, which has many parallels with OHS legislation, also provides some important insights into the operation of general deterrence. The study in question included a telephone survey of 233 companies engaged in chemical manufacturing and electroplating. In an attempt to assess the predictive value of general deterrence theory, respondents were queried as to whether legal sanctions imposed
on other firms in their industry for relatively high profile breaches – ‘signal cases’ - of environmental protection legislation had prompted changes in their compliance behaviour. Only 42% of respondents indicated awareness of signal cases (Thornton et al 2005: 282) and of these most underestimated the attendant sanctions; findings which indicated a very significant degree of inattentiveness to information on penalties for non-compliance (Ibid: 272). On the other hand, 89% of respondents were able to recall one or more incidents in which fines had been imposed on other employers for breaches (Ibid.); with most using their knowledge of these incidents as a reminder to check whether they were in compliance and as a reassurance that competitors who were not would be detected and punished (Ibid: 281). The combined effect of these findings suggest that general deterrence is not determined in accordance with prescriptions hypothesised by traditional deterrence theory but rather in a much more mediated manner (Gunningham et al 2005: 290).

Other studies on general deterrence have tended to focus on broader aspects of employer behaviour than those considered by econometric investigations. One of the recurrent themes to have emerged concerns the importance of corporate reputation. A good reputation is frequently depicted as one of the hallmarks of ‘corporate social responsibility’ (Montero et al 2009: 1441). On closer observation it is apparent that this view needs qualification since corporate reputation can often owe more to media manipulation than socially responsible behaviour. In the annals of Australia’s corporate history this has been poignantly exemplified by the conduct of the James Hardie group of companies. Long regarded as a paragon of corporate Australia, Hardie’s seemingly impeccable reputation was largely the product of a public relations campaign that for several decades succeeded in denying and later downplaying the lethal effects of its asbestos products (Peacock 2009: 141-160).

Notwithstanding this caveat, the available research indicates that a well earned reputation as a good corporate citizen is valued by many, particularly larger, employers with a ‘brand’ to protect. Concomitantly, this category of employer is sensitive to adverse publicity arising from breaches of the law. As pointed out in a
pioneering 1983 study, which examined its effects on 17 corporate offenders, “Adverse publicity is of concern not so much by reason of its financial impacts but because of a variety of non-financial effects, the most important of which is loss of corporate prestige” (Fisse and Braithwaite 1983: 247).

In relation to OHS, a 1998 review of the literature conducted for the UK Health and Safety Executive found that corporate image, and the associated fear of adverse publicity, was the predominant motivator of companies in instigating OHS improvements (Wright 1998: 12). A survey commissioned the following year by the British Safety Council reached similar conclusions. Interviews were conducted with 102 senior directors from a representative sample of large British corporations concerning their views on OHS. Corporate reputation featured prominently, with 79% of respondents indicating that OHS had “a great or fair” impact on their organisation’s reputation (Smallman and Johns 2001: 239). The concern for corporate reputation was also echoed in a 2003 survey of over 400 large UK corporations, public sector agencies and voluntary organisations which found that it ranked as the equal most important factor in determining board level governance arrangements regarding OHS (Wright et al 2003: 53).

In Australia there has been far less research on OHS and corporate reputation. The most significant research to date, published in 2001, was undertaken as part of a broader study by the consulting arm of KPMG into the key factors influencing Australian management on OHS issues. The study included a telephone survey of 600 CEOs and 400 supervisors (KPMG Consulting 2001: 23) in relation to their attitudes on a wide range of OHS issues. It found that while corporate reputation was particularly important to many large companies, particularly those operating in high risk industries - such as manufacturing, mining and public transport – it was not a major consideration raised by CEOs in less publicly exposed sectors (Ibid: 114). Overall, about 1/3 of CEOs indicated that corporate reputation played a significant role in motivating their OHS activities, a significantly smaller proportion than those who cited regulatory obligations as a major motivator (Ibid: 114).
Corporate reputation can, as already indicated, be influenced by perceptions of adverse publicity in the event of enforcement activity arising from a serious work-related injury or fatality. Respondents who rate compliance with regulatory requirements as a higher priority implicitly may therefore do so, at least partly, with this consideration in mind. Consequently, surveys results may underestimate the significance of corporate reputation as a motivating factor. To the extent this is so, it further strengthens the case for harnessing corporate reputation as part of a broader strategy to secure higher compliance and lower injury rates.

Personal liability has also been identified as a major motivator for CEOs and senior managers as a means of sheeting home responsibility for OHS obligations. As in the United Kingdom (Wright et al 2003: 53), apprehension by directors and senior executives concerning the possibility of prosecution for breaches of OHS legislation has assumed considerable importance in Australia. In its 1995 report prepared for the Australian government, the Industry Commission emphasised the pivotal importance of senior executives in the management of OHS responsibilities and argued that unless due diligence was exercised they should be held personally liable in the event of work-related injury or death (Industry Commission 1995, 1: 122). Research based on interviews with CEOs and senior managers of 25 large Australian firms also drew attention to the importance of personal liability, with the author concluding that “it is the fear of personal liability which most exercises the minds of managers” (Hopkins 1995: 114). Further corroboration of the deterrent effect of personal liability was provided by the 2001 KPMG study which found that 84% of CEOs regarded “the threat of personally being prosecuted” as a motivator for OHS improvements (KPMG Consulting 2001:71).

These findings indicate personal liability may be more important than traditional corporate liability in fostering greater compliance by directors and senior executives. The implication has also been drawn that a sharper focus on the prosecution of corporate executives who breach their OHS responsibilities is warranted as this
would provide “a much greater incentive” for fostering compliance (Gunningham 1998: 14). While all Australian jurisdictions now contain provisions in their OHS statutes for personal liability in respect of senior management decision makers (Stewart-Crompton et al 2008: 79-80) there have been few prosecutions, in part at least because of the difficulties involved in untangling the corporate and legal complexities involved in determining “the relevant officers, or in identifying the roles and what may properly be expected of the officers” (Ibid: 83) Needless to say, unless these complications are resolved, however, the personal liability of directors and senior executives for OHS offences is likely to remain problematic.

It is against this background that the proposed offence of industrial manslaughter - for individuals and organisations - has been canvassed during the last two decades by researchers and governments in Australia (Hopkins 1995: 110-112, Gunningham and Johnstone 1999: 332-333, Bohle and Quinlan 2000: 293-294, Johnstone 2004a: 176). The main rationale for the introduction of this type of offence is its potential for removing the ‘corporate veil’ that has traditionally shielded directors and senior executives of large and medium sized organisations from prosecution for OHS offences, and thereby strengthening the deterrent effect of OHS law. It would also serve to offset the bottom heavy nature of the enforcement pyramid, exemplified by the extensive reliance on persuasion, administrative sanctions and the low level of fines associated with mainstream prosecutions (Gunningham and Johnstone 1999: 124). More generally, industrial manslaughter offences would have the effect of de-conventionalising OHS crime. To date, however, the only Australian jurisdiction to have adopted industrial manslaughter offences has been the Australian Capital Territory, and there are no indications that other jurisdictions are likely to follow suit in the foreseeable future. Moreover, it is probable that the ACT’s industrial manslaughter provisions will be repealed as part of the national harmonisation process which requires the states and territories to adopt model OHS legislation.

To summarise, the available evidence indicates that there can be a general deterrent effect associated with enforcement activity. Although modest, it is apparent that it
can impact not only on compliance levels but may also contribute to lower injury rates. There is also considerable scope for increasing general deterrence through greater publicity of enforcement activity and through the creation and enforcement of offences which address issues pertaining to personal liability.

8. Regulatory Legitimacy and Compliance

There is also some evidence that regulation itself may play a role in facilitating compliance with legislative responsibilities by employers. This is especially so if the legislation in question is regarded as legitimate and where regulatory obligations are well designed, intelligible, readily accessible and capable of being implemented (OECD 2000: 20-21). To some extent, this parallels the situation in which individuals regard compliance with the law as part of their civic duty. This comparison should not of course be overdrawn since the operation of business enterprises is governed by more complex organisational arrangements and a greater emphasis on productivity and profits. The point remains though is that many employers – although precisely how many is an open question - endeavour to comply with government regulation because it is legally, and morally, ‘the right thing to do’. Conversely, where regulation is removed or watered down, compliance levels may fall.

An illustration of this latter issue, documented by Hopkins, involved the treatment of OHS obligations by a large Australian airline before and after partial deregulation of air safety regulations. Following partial deregulation, the airline’s maintenance engineers found it considerably more difficult to obtain funding from the company’s senior management for safety purposes whereas previously their case had been materially bolstered by virtue of the presence of a comprehensive set of regulations (Hopkins 1995: 78.).

On the flip side, a 1998 review conducted for Australia’s National Occupational Health and Safety Commission reported that regulation was “the most important
motivator” (Gunningham 1999: 39) of behavioural change by corporate employers in relation to OHS. Results not inconsistent with this assessment were also reported by the KPMG study, referred to earlier. The main finding was that the “principal motivation for CEOs and supervisors to attend to safety was the desire to protect the safety of workers” (KPMG Consulting 2001: 8), although not all CEOs shared this commitment; with a ‘rump’ of approximately 20% having reportedly failed to adopt a responsible attitude towards the management of their OHS responsibilities. (Ibid: 9).

Regulation as a factor in influencing employers to comply with OHS obligations is also a feature of UK research. A report produced for the Health and Safety Executive in 2000, based on a telephone survey of 1900 employers, found that 48% of those surveyed believed that regulation and the attendant moral obligations to comply with the law were the primary considerations that stimulated them to make OHS improvements (Wright et al 2000: 108). However, as with the KPMG report, there was a significant minority of employers – approximately 20% - for whom OHS was “not a priority” (Ibid: 89-90).

While surveys highlighting a normative commitment to the health and safety of workers and respect for the law by a significant proportion of employers are suggestive, this does not mean that these views are necessarily, or always, reflected in sound management practices. In some cases, the responses given may predominantly have served, consciously or otherwise, to present the respondents in a favourable light. Alternatively, they may be regarded as an intention to ‘do the right thing’. But intentions are often not followed through, or at least not with the requisite degree of commitment and diligence necessary to meet the standards for safe and healthy workplaces as required by the relevant statutes.

The ‘intentions gap’ between theory and practice is likely to be more pronounced with smaller employers. The KPMG study, for example, found in excess of 90% of small businesses operating in medium to high hazard industries believed they were
in compliance with OHS obligations, even though more than 33% had not formally identified the risks involved with their businesses or the measures required to manage them (KPMG Consulting 2001: 178). This finding is hardly surprising as OHS is only one of many competing priorities requiring the attention of employers and is rarely their preeminent concern. In the UK survey cited above over 60% of employers nominated profitability and customer service as the highest business priorities (Ibid: 74), as opposed to approximately 10% that nominated management of OHS as their most important consideration (Ibid: 78).

These qualifications regarding possible self reporting bias are necessary considerations when assessing survey results of this nature. Nevertheless, it would be erroneous to dismiss these findings as purely a construct of the survey methodology employed, particularly as evidence from other areas of business regulation reinforces the view that the perception of regulation as a legitimate responsibility placed on business can play an important role in prompting compliance by employers with statutory obligations (OECD 2000: 73). In addition, many employers regard compliance with the law as a means of maintaining their own legitimacy “in the eyes of government, industry peers, and the public” (Ibid: 73).

The substantive issue from an enforcement perspective is not so much that employer compliance is often influenced by normative considerations but rather the extent to which these considerations are given practical expression. The data presented earlier on inspections and Notices issued for breaches of Australian OHS legislation indicate that non-compliance is widespread and, consequently, that normative considerations alone are not enough. However, until such time as more focused and statistically robust research on compliance levels is conducted and the reasons for compliance and non-compliance are more clearly elucidated discussion of these issues will continue to suffer from a lack of precision.
In relation to whether regulation by itself leads to lower injury rates, the evidence is both limited and mixed. However, to the extent that it does occur it casts a further shadow on the validity to traditional deterrence theory.

A 1988 US study sought to compare injury rates, for the periods 1966 to 1968 and 1973 to 1974, between manufacturing firms in the states of New York and Texas following the passage of the OSHA legislation. Whereas safety regulation in New York prior to OSHA was substantial, in Texas it was very limited (Curington 1988: 350). Accordingly, it was hypothesised that the adoption of federal safety standards in Texas would result in a statistically significant reduction in the state’s manufacturing injury rate. Although there was no across the board reduction in the aggregate manufacturing injury rate, a reduction from 8.7 to 5.7 injuries per 1000 workers was reported for several categories of machinery related injuries, and was interpreted as indicating “that there may be some beneficial impacts from the use of safety standards as a regulatory mechanism” (Ibid: 359). A Canadian study, also employing a before and after approach, attempted to measure the impact of regulation arising from major OHS legislative reforms associated with the creation of Quebec’s OHS and workers’ compensation authority in 1980. This study covered the periods 1970 to 1980 and 1981 to 1987 and, not dissimilarly, reported a modest reduction in some manufacturing injury rates (Lanoie 1992: 960) which was presented as further evidence that regulation can reduce the incidence of work related injury (Ibid: 964).

A major shortcoming with these studies was a failure to sufficiently control for other variables that may have contributed to the results reported. For instance, no attempt was made to control for enforcement of the legislation. Consequently, it is not possible to distinguish between any effects associated with the enactment of the legislation as opposed to its administration. With the US study, there was also the problem that the before and after periods covered were too short to establish a trend line on which much reliance could be placed.
In the UK, a 2000 study reviewed the implementation of the Construction, Design and Management Regulations to ascertain whether their introduction in 1994 had contributed to a reduction in work related fatalities on construction projects during the five year period to June 1998. The study was based on interviews with 89 industry participants, including labourers, tradespeople, supervisors, safety advisers, site and project managers along with a statistical analysis of fatality rates over this period (Brabazon et al 2000: 27). Over 90% of the industry participants interviewed believed that the decline was attributable to the adoption and implementation of the new regulations (Ibid: 31). This assessment was bolstered by the statistical analysis which revealed a 10% decline in the rate of construction industry fatalities during the five year period (Ibid: 23). On the basis of these results it was concluded that the regulations had “probably been successful in reducing fatalities on construction projects” but that there were “still areas where improvements can be made” (Ibid: 30). However, as the statistical analysis provided no details of measures used to control for possible confounding influences – for example, enforcement activity or a pre-existing downward trend in fatality rates – it is not clear that the decrease in fatality rates was due solely or predominantly to the adoption of the CDM regulations. Although suggestive the results obtained were far from conclusive.

Findings from an Australian study conducted during the early 1990s were less problematic. The study in question investigated 98 severe or serious injuries in 98 South Australian worksites across a range of industries which were subsequently matched with 78 comparable worksites. Of the 98 injuries, 53 were considered to have been the due to breaches of specific regulations. The worksites involved were individually matched with 43 comparable worksites where there had been no injury within the previous two years; with 30 considered to have been in compliance with the relevant regulation (Gun 1993: 54-55). These observations were then used to determine the matched pairs odds ratio which resulted in a finding that in the absence of regulations the corresponding injury rate would have been 2.25 times higher (Ibid: 63). The much higher level of compliance in the matching worksites was
significantly associated with management awareness of regulatory obligations and management training (Ibid: 57-59). Although the sample size was small and there was some potential for self-selection bias, as participation in the study by employers was voluntary (Ibid: 59-60), the strength of this finding was supportive of a positive link between the adoption of regulations and injury prevention.

There is thus some evidence to suggest that the perceived legitimacy of legislation and specific regulations contribute to higher compliance levels and lower injury rates. However, this evidence is limited and mixed in nature. Although suggestive, further research will be required before any conclusive assessments can be made on this important issue.

9. Reconceptualising Deterrence

The role of legitimacy in facilitating compliance with regulation is complicated further by the fact that it does not entirely take place in an enforcement vacuum. Because of this, some researchers have sought to distinguish between what has been described as ‘explicit general deterrence’ and ‘implicit general deterrence’. In this bifurcated approach, explicit general deterrence is viewed as knowledge of sanctions imposed against offenders (Gunningham et al 2005: 308), though not in the comprehensive and calculated manner presumed by traditional deterrence theory, while implicit general deterrence is defined as “the sense that the mere existence of official regulations entails both some risk of punishment and a duty to comply” (Ibid: 290). In practical terms implicit general deterrence can be interpreted as referring to circumstances in which compliance is driven more by the legitimacy of regulation rather than the threat of sanctions, although sanctions serve as a reminder of what can happen when compliance is not forthcoming.

This distinction between implicit and explicit general deterrence enabled the authors of the environmental protection study discussed earlier to conclude that the overall impact of implicit general deterrence was of much greater significance in motivating
employer compliance than both specific deterrence and explicit general deterrence (Ibid: 309). However, as they noted, the chemical manufacturing and electroplating industries which formed the basis of their study had previously been the subject of intensive enforcement activity and that this had inspired the "culture of compliance" reported by many of their respondents (Ibid: 312). In other words, the greater impact of implicit general deterrence appears to have been the result of specific and explicit general deterrent effects associated with concerted past enforcement activity in these two industries (Ibid: 309).

The extent, therefore, to which compliance - and, in the case of OHS, lower injury rates - might be driven by a sense of regulatory legitimacy independent of enforcement activity, is unclear and likely to remain so until appropriate benchmarking studies have been carried out. A related issue is whether, once achieved, high levels of compliance persist in the absence of enforcement. Here, the evidence is somewhat less opaque. In the study conducted by Gunningham and his colleagues many of the respondents maintained that compliance with environmental protection standards would deteriorate over time "without effective enforcement" (Ibid: 308). Underpinning this view is the belief that compliance is contingent on the existence of a level playing field that prevents offenders from benefiting from non-compliance; and a corresponding conviction that without a level playing field regulatory decay is likely to set in (Ibid.). This assessment is bolstered by findings from road safety research which have characterised ongoing compliance as a dynamic and delicate balancing act between competing forces that either reinforce or undermine perceptions of deterrence (Homel 1986: 136).

While uncertainties remain as to the significance of regulatory legitimacy in contributing to increased OHS compliance and reduced injury rates, its broader significance is that it is yet another factor which cannot be readily reconciled with the traditional, expected utility theory of deterrence. In conjunction with other important findings – including the impact of relatively small fines in promoting compliance and evidence that many employers do not calibrate their compliance
activities on a strict cost benefit basis - it is apparent that the explanatory power of this reductionist framing of deterrence is, at best, quite limited (Scholz 1997: 254).

In seeking to cast off the reductionist characterisation of deterrence epitomised by the expected utility doctrine some researchers have sought to recast the theory in terms of bounded rationality (Scholz and Gray 1990: 286). As opposed to the reductionist approach, in which businesses are depicted as fully informed, rational decision-making agents that carefully way up the costs and benefits of compliance in line with the broader imperatives of profit maximisation, the concept of bounded rationality dispenses with this idealised view in favour of a framework in which decision-making is constrained by information, time and cognitive capacity (Selen and Gigerenzer 2002: 4). As a result of these limitations bounded rationality implies that decision-making agents often have only a limited ability to influence the goals they seek to attain. In real world circumstances the decision-making process is also constrained, to varying degrees, by the legal architecture underpinning business regulation. This is not to imply that the goal of profit maximisation - the sine qua non of market economies - is relegated to merely one of many competing objectives but rather that it is mediated by a range of regulatory, institutional and socio-political considerations.

From a bounded rationality perspective OHS is but one of many organisational issues confronting employers and, as illustrated earlier, is rarely the major management priority of employers. Even where OHS is accorded priority status there can often be discrepancies between an organisation’s stated goals and its operational performance (Thomas 2009: 33-36). Under these circumstances enforcement activity, particularly where it results in penalties for non-compliance, may be viewed as a means of concentrating “managerial attention” on work-related hazards that have been inadequately dealt with or not addressed at all (Scholz and Gray 1990: 286). In this context, enforcement provides a catalytic effect in motivating employer consideration and action in relation to their OHS obligations.
There is also evidence to suggest that enforcement with penalties can stimulate more widespread OHS changes. In the 2003 Washington state study, by Baggs and his colleagues, the main conclusion reached was that effective enforcement can give rise to “broad improvements in safety practices” in the workplace (Baggs et al 2003: 494). Similarly, another US study of employer responses to penalty inspections between 1992 and 1998 reported that the subsequent reduction in injuries associated with these inspections extended well beyond those hazards for which the citations were issued (Mendeloff and Gray 2005: 236). In both these studies the response of employers, according to expected utility theory, should have been determined by a deterrence calculus based on the costs associated with compliance balanced against the probability of detection and the corresponding size of the penalty for non-compliance. At best, this should have only resulted in “incremental, narrowly focused safety improvements” (Baggs et al 2003: 491).

Despite its valuable insights, expected utility theory is unable to account for the complexity of business decision-making within an organisational atmosphere in which there are competing demands for managerial attention. With a bounded rationality framework, however, a different behavioural dynamic appears to be involved in which effective enforcement “may trigger a reshuffling of managerial priorities” (Ibid.). By shining a spotlight on non-compliance, enforcement can have the effect of prompting employers into adopting a holistic approach to the management of work-related hazards that transcends the original issues of concern.

It is also essential to recognise that employer behaviour in relation to OHS may be influenced not only by regulators but also workers and trade unions. In most of the literature dealing with OHS and deterrence this factor is conspicuously absent.

Worker impact on employer compliance and injury prevention can take place either by direct action, through facilitative legislation or a combination of the two. In Australia a classic example of the former were the bans placed by the Builders’ Labourers Federation in various parts of Australia during the mid 1970s on ‘riding the
hook’ - a far too frequently fatal work practice which required dogmen to ride, often at great height, the hook of a crane transporting loads from one part of a construction site to another (McQueen 2009: 124-125). The success of this intervention subsequently resulted in riding the hook being declared illegal during the early 1980s (Ibid: 298). In more general terms, OHS in Australia is an industrial relations issue that has not infrequently involved direct action of one kind or another. In the three year period to 1988, it was conservatively estimated that OHS conditions were the primary consideration at stake in at least 10% of industrial disputes and accounted for 4.7% of total working days lost during this period (Quinlan and Bohle 2000: 441).

In contrast to direct action, facilitative legislation provides a statutory framework which affords opportunities for workers and their representatives to be involved in raising and resolving health and safety issues although the extent of this involvement can vary dramatically between different jurisdictions. In the United States, for example, the opportunity for worker involvement under the federal legislation is limited to requests for complaint inspections (OSHA 1970: s. 8(f)) although in many individual states the scope for participation is more expansive (Smitha et al 2001: 1001).

The role of facilitative legislation has been conceptualised as a means by which the state provides an avenue for workers and employers “to coordinate expectations on acceptable, cooperative outcomes” (Scholz and Gray 1997: 696). The incentive for employers in the US to participate in such arrangements is that failure to do so may result in workers or their unions invoking their right to seek OSHA inspections to resolve safety complaints (Ibid: 697). In effect, this type of legislation creates a statutory space which can enable improvements in OHS conditions to be negotiated. In addition, where disagreements occur it provides for external intervention, in the form of OHS inspectors, to adjudicate or monitor the issues in dispute. The benefits of facilitative legislation are most likely to occur where trade unions are involved. A 1991 US regression study, which controlled for company and establishment size,
inter-industry differences and selected working conditions, found that “unions substantially raise the probability of a complaint inspection” (Weil 1991: 26). This was particularly evident in larger firms where the likelihood of a union initiated complaint inspection was more than eight times greater than for comparable non-union workplaces (Ibid.).

UK studies lend further support to an OHS ‘union effect’. The 1995 study by Reilly and his colleagues of 432 manufacturing establishments sought to determine the impact of different health and safety arrangements on the frequency of workplace injuries, using a weighted least squares estimating procedure (Reilly et al 1995: 284-285). The study controlled for the percentage of manual workers, union density, the percentage of female workers and various consultative arrangements. The main conclusion reached was that in establishments with health and safety committees, the worker members of which were appointed by trade unions, there were 5.7 fewer injuries per 1000 workers compared to establishments where employers dealt with health and safety issues without any consultative arrangements (Ibid: 281). A 2009 study of the same data, using a Poisson estimation procedure, included comparisons between health and safety arrangements based exclusively on management prerogative, those involving health and safety committees where at least some of the worker representatives were appointed by trade unions and those where none were selected by unions (Nichols et al 2009: 218). As with the earlier study, the strongest linkage with injury reduction was associated with union involvement in the selection of committee members. The impact of unilateral management decision making on workplace injury reductions, by contrast, had no statistically significant effect in lowering injury rates (Ibid: 220).

In contrast to the United States, the opportunities for worker involvement in health and safety are generally much greater in Australian jurisdictions and include provisions for consultation arrangements, joint worker-management health and safety committees and health and safety representatives, as well as a range of statutory powers including in some states and territories the right, as mentioned
earlier, to stop dangerous work (Stewart-Crompton et al 2009: 388-396). To date, however, there have been no sophisticated econometric studies comparable to those undertaken in the US and UK concerning the influence of workers and trade unions in reducing work-related injury. What evidence there is, however, points to a similar conclusion (Biggins et al 1991: 153-154, Warren-Longford et al 1993: 604).

To the extent that workers, either directly through trade unions or in a more mediated fashion as provided for by facilitative legislation, are able to influence employer compliance and reduce the incidence of injury in the workplace, they may be viewed as exercising a quasi-regulatory function. As with inspections carried out by government inspectors, interventions by workers and their unions can provide a catalyst by which to focus management attention on OHS issues of concern. There are, of course, question marks as to whether this role will continue in the future, especially in light of the challenges posed by the decline in union density over recent decades. Nevertheless, the widespread occurrence of these interventions adds further weight to the view that the theoretical foundations underpinning traditional deterrence theory are in need of a thoroughgoing reformulation.

While a bounded rationality approach provides a promising framework for such a reformulation, it is also apparent that its application to OHS will need to take greater account of the complexities involved. The necessity for this arises because work-related injury is a function of many, often competing, factors. These include the industrial distribution of occupational hazards, the size, gender and age of the workforce, employment arrangements, government regulation, employer behaviour, worker involvement and the overall state of the economy.

The reductionist version of deterrence as epitomised by expected utility theory offers a direct but simplistic account of enforcement and its effects. The probability of detecting offences and appropriate sanctions undoubtedly do matter, as does the perception of these pivotal factors, but the evidence indicates that both the means by which they interact with each other and the manner in which they are mediated
by other influences is still poorly understood and beyond the ability of expected utility theory to satisfactorily explain. It will be by unravelling these interconnections that the building blocks for a new, revitalised theory of deterrence will be created.

10. Main Findings and Implications

There has been a growing body of research over the last four decades into the effectiveness of OHS enforcement. Very little of this research, however, has focused on Australian enforcement activity. In part, this has reflected the lack of priority accorded OHS as a public policy issue as well as the fact that enforcement has historically been seen as a last resort by regulators. While this has changed, during the last decade or so, it remains the case that studies on OHS enforcement in Australia have been few and far between. This is all the more remarkable in view of the extraordinarily high social and economic costs associated with the ongoing inability to effectively manage OHS hazards.

The available research literature on OHS enforcement and deterrence is heavily reliant on US studies, particularly those based on econometric analyses. These studies have varied substantially in the statistical techniques employed, the employer cohorts examined, the data sets used and the theoretical frameworks within which they have been located. Caution is therefore required in generalising the findings which have been obtained. This is all the more so when applied to Australian conditions where the enforcement tools used differ from those utilised by OSHA inspectors. Nevertheless, particularly in the absence of more detailed Australian studies, some tentative conclusions can be drawn.

The first and most important finding is that deterrence can have an effect in promoting OHS compliance and reducing injury rates, although the evidence is by no means definitive. This finding is line with a number of previous reviews (Johnstone 2004: 152-154, Wright et al 2004: 11-12, Tompa et al 2007: 91). A recurrent theme in the US literature is that inspections that do not involve the application of
sanctions for non-compliance have no deterrent effect. Any deterrent effect is confined to those inspections that impose sanctions. In the US context this takes the form of, generally, small fines. In Australian jurisdictions Improvement and Prohibition Notices are the main enforcement tools. Although they do not impose fines as such they do require employers to take remedial action to achieve compliance. This is not a costless exercise and, in many circumstances, the costs involved may be higher.

The second point of interest is that it is the probability of detection which makes the most significant contribution to deterrence. This appears to be the case even when the sanctions applied for non-compliance are comparatively low. This is not to suggest that higher level sanctions are not warranted, but rather a reflection on historical circumstances in which relatively low sanctions for non-compliance have prevailed.

Third, the available evidence on the deterrent effect of prosecutions for non-compliance is both limited and mixed although on balance it appears that there is a specific, but by no means universal, deterrent effect.

Fourthly, it is apparent that specific deterrence is greater than general deterrence. This is to be expected as the direct experience of having one’s own organisation detected and sanctioned for committing an offence is likely to have a greater impact than simply hearing about this happening to others. It is also apparent that the loss of reputation and the associated fear of public shaming may have a significant deterrent role for larger employers and, more generally, those with a brand name to protect. In addition, survey results indicate that personal liability is likely to be an important motivator for promoting compliance and reductions in injury rates.

Fifth, what evidence there is indicates that employers do not gauge general deterrence in accordance with the cost benefit calculus presumed by traditional deterrence theory.
A sixth finding is that there is some evidence to suggest that regulation has a direct and positive impact on both compliance and injury reduction.

Seventh, there is some evidence that normative considerations contribute to compliance and injury reduction, although the extent to which this may occur is unclear.

An eighth finding is that improvements in compliance and associated reductions in injury rates can be influenced by cooperation and negotiations between employers, workers and trade unions.

Finally, it is apparent that the traditional view of deterrence as expressed in expected utility theory does not provide an adequate explanatory framework for conceptualising deterrence. While there is empirical evidence to support deterrence, it does not do so in the one dimensional manner envisaged by expected utility theory. Compliance cannot simply be characterised in terms of punishment and the threat of punishment, or determined exclusively by the cost benefit calculus contemplated by expected utility theory.

In addition to these findings, it is also evident that there are fundamental gaps in our understanding of the role of enforcement in Australia in promoting compliance with OHS legislation and reducing the incidence and severity of work related injury and disease.

At a theoretical level there is an obvious need for a better understanding of the mechanisms by which deterrence works and the linkages between specific and general deterrence.

As far as administrative sanctions are concerned, there is a conspicuous lack of published studies that assess the impact of Improvement and Prohibition Notices on
compliance and injury rates. This omission is all the more significant given that the use of Notices is the mainstay of the enforcement activity. With criminal sanctions, the deterrent effect of prosecution in relation to compliance and injury rates also warrants much greater attention. As already indicated the findings from existing research are limited and mixed. More generally, since prosecution constitutes the most serious sanction available for dealing with OHS offences it is essential that the impact of this enforcement tool is a fully understood both in terms of its operational effectiveness and from a public policy perspective.

Investigation into the impact of specific regulations on compliance levels, following their introduction, has also been limited and is another important area where research is required. Even more basic is the need for research to determine baseline compliance. Baseline data is essential to determining the extent to which duty holders comply with the law, for facilitating the measurement of compliance rates over time and assessing the effectiveness of enforcement activity in raising compliance and reducing injury rates.

From what is known about deterrence there are a number of implications that can be drawn that may assist in recalibrating enforcement activity. The certainty of detection is the most important component of deterrence and suggests that a greater emphasis on concentrated, and where necessary sustained, enforcement activity in the form of well targeted campaigns can contribute materially to increased compliance and reduced injury rates. There is also considerable scope for leveraging the impact of specific deterrence arising enforcement activity to increase general deterrence. The adoption of new regulations to address specific hazards not currently covered may also provide opportunities for improving OHS performance.

Over the last decade or so in several Australian jurisdictions there has been a change in the deployment of Inspectorial resources from reactive to proactive investigations and with this shift an increase, albeit uneven, in targeted enforcement campaigns - a development that, more recently, has evolved to include nationally coordinated
campaigns. The focus of these operations has been high injury industry segments and other priority areas, with Improvement and Prohibition Notices being used as integral components of the campaigns (Bohle and Quinlan 2000: 296, Johnstone 2004: 160). Where evaluations have been carried out they have focused almost exclusively on short term results which, though positive, provide no feedback on whether the increased compliance was sustained over time. (HWSA 2009: 10-13). There have been very few longer term evaluations. However, in one case, involving enforcement to improve compliance with fall protection requirements, the results obtained indicated that compliance in 2008 was comparable with that of an earlier campaign conducted in 2004 (HWSA 2008: 10). Although far from conclusive, these results are nonetheless suggestive of the potential benefits they can be derived from concentrated enforcement activity.

There is no reason why a similar approach could not be adopted in relation to prosecutions. Historically, prosecutions have been used on a reactive basis, usually as a last resort, and almost invariably in circumstances where there has been a death or serious injury. By contrast a proactive approach would seek to target areas of high risk within a particular industry or specific hazards across a range of industries, especially where previous inspectorial interventions have not secured the requisite level of compliance. This would complement prosecutorial activity taken regarding OHS breaches associated with deaths and serious injury to workers and/or members of the public. The adoption of a proactive stance on prosecutions for dealing with violations could serve as a major step forward in de-conventionalising OHS crime.

A more strategic role concerning the use of prosecution as an enforcement tool could also have other advantages - although for this to occur, the issue of low penalties for OHS convictions would have to be addressed. In part, at least, this may be assisted by the new Model Work Health and Safety Bill endorsed, in December 2009, by the federal, territory and most state governments (WMRC 2009a: 1). The draft legislation provides for three categories of corporate offences and graduated step-ups in the level of fines that can be imposed, in line with the seriousness of the
offence. The offences can be categorised as those involving reckless conduct with risk of death or serious harm, those involving a risk of death or serious harm and those without any of these aggravating factors. The maximum fines proposed are, respectively, $3 million, $1.5 million and $500,000 (WMRC 2009b: ss 30-32). If enacted this legislative framework would constitute a significant advance on existing arrangements; especially if, as has been recommended, accompanied by sentencing guidelines more closely attuned to the nature of OHS offences (Stewart-Crompton et al 2008: 127). More particularly, these changes may well facilitate a leveraging effect in keeping with one of the key premises of the enforcement pyramid; namely, the notion that the availability of credible high level sanctions at the top end would enhance the ability of Inspectorates to effect greater compliance at lower levels of the pyramid (Ayres and Braithwaite 1992: 40).

There is also much that can be learnt from improvements in road safety over recent decades. A crucial ingredient has been the adoption of a more robust approach to enforcement of the law reinforced with the widespread use of publicity. High profile, and suitably tailored, media enables regulatory activity to be made visible to the broader community. When used over an extended period in conjunction with vigorous enforcement it serves to raise awareness and bring about significant changes in behaviour - it magnifies the deterrent effect of enforcement and in the case of road safety has contributed significantly to an ongoing reduction in road related deaths and injuries (Fildes and Lee 1993: 51). As pointed out by the Australian Transport Council, the 37% decline in road fatalities between 1989 and 1997 owed “much to the introduction of enforcement and publicity programmes designed to improve speed compliance” (ATC 2006: 24). Moreover, the greater emphasis on enforcement has contributed to a paradigm shift in public discourse surrounding road safety. Historically, as has been the case with OHS, criminal behaviour in the road safety domain was conventionalised at an early stage and consequently treated with much less seriousness than warranted, despite the tremendous social and economic costs involved. This has now changed and quite dramatically so.
By contrast, robust enforcement used in conjunction with high profile media interventions is very much under-developed in the OHS arena. While there has been an increase in recent years by some jurisdictions in the use of the electronic media to publicise high profile prosecutions, there has not been anything comparable to the sustained efforts that have characterised road safety campaigns. The comparison is even less favourable when other enforcement actions are brought into the equation. Interventions involving the use of Improvement and Prohibition Notices are rarely, if ever, publicised through the mass media despite being the most widespread form of enforcement activity undertaken by OHS regulatory agencies.

It is also essential to note that the road safety model does not eschew advice, education, persuasion, information and similar measures. On the contrary, adequate access to user friendly information and training for duty holders that enables them to meet their legal obligations is viewed as indispensable. These considerations, however, are located in the context of an overall strategy in which enforcement plays a pivotal role augmented by heightened publicity that throws a spotlight on criminal behaviour and its effects on individuals, their families and the community. This has had the effect of positioning road safety as an important public policy issue, highlighting the need for compliance with the law and amplifying the deterrent effect of enforcement activity.

The adoption of a similar approach for dealing with OHS offences, despite the many challenges involved, offers an unprecedented opportunity for overcoming the longstanding and entrenched ambiguity that continues to surround OHS crime, and in the process the prospect of achieving significant reductions in the level of work related death and injury.
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