A Qualitative Analysis of Accident Prevention Incentives in the American Health and Safety System

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This dissertation is submitted as part of an MSc degree in Risk Analysis at King's College London.
Declaration

KING’S COLLEGE LONDON
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DEPARTMENT OF GEOGRAPHY
MA/MSc DISSERTATION

I, …….Maximilian Genta……..

hereby declare (a) that this Dissertation is my own original work and that all source material used is acknowledged therein;

(b) that it has been specially prepared for a degree of the University of London; and (c) that it does not contain any material that has been or will be submitted to the Examiners of this or any other university, or any material that has been or will be submitted for any other examination.

This Dissertation is ..........11,940........words.

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Date: 27 August, 2015
Abstract

OSHA is unique among developed nations’ regulatory institutions for its weak enforcement capabilities, and its impact on workers’ safety has been questioned. In light of its regulatory shortcomings, various authors have argued that workers’ safety would be better served through private-sector financial incentives, including insurance premiums and tort laws, as these are presumed to exert a heavier financial cost on unsafe employers. This study draws from literature and interviews with individuals involved in the health & safety sector in Texas to evaluate the theoretical arguments for insurance and tort liability as deterrents for accidents. The findings are then tested on a group of 28 employers. We find that OSHA regulation may have a reduced impact on highly experience-rated employers carrying workers’ compensation insurance. Thus the agency’s regulatory efforts may be best served targeting smaller employers which are less likely to be experience-rated.
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### Abbreviations

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<tbody>
<tr>
<td>CDC</td>
<td>Center for Disease Control</td>
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<td>DWC</td>
<td>Texas Department of Insurance Division of Workers' Compensation</td>
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<td>GAO</td>
<td>United States Government Accountability Office</td>
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<td>NCCI</td>
<td>National Council of Compensation Insurance</td>
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<td>NCSWCL</td>
<td>National Commission on State Workers’ Compensation Laws</td>
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<td>NSC</td>
<td>National Safety Council</td>
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<td>OSHA</td>
<td>Occupational Safety and Health Administration</td>
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<td>OSHCON</td>
<td>Occupational Safety and Health Consultation Program</td>
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<td>TDI</td>
<td>Texas Department of Insurance</td>
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<td>TXANS</td>
<td>Texas Association of Responsible Non-subscribers</td>
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Introduction

Developed states have traditionally relied on direct, command-and-control regulation from public institutions to ensure that employers maintain safe workplaces. However, the United States’ Occupational Safety and Health Administration has notoriously weak enforcement capabilities, discussed at length by academics (Viscusi 1986), media (Blumgart 2012), and the agency’s supporters alike (AFL-CIO 2015). OSHA regulation has remained relatively static over the years - its budget has not grown along with the American economy, and in the past decades it has dropped more standards than it has adopted (Schneider 2007). Although the agency goes through periods of increased or decreased enforcement activity, usually dependent on political pressures, OSHA regulation today resembles in many respects the infant agency of the 1980’s.

OSHA regulation alone cannot possibly account for American employers’ increasing concern with reducing accident rates and their associated costs. The costs – both direct and indirect – of workplace injuries have risen dramatically: between 1992 and 2007, the annual cost of occupational injuries and illnesses in the United States rose to $250 billion (Leigh 2011). One study by Liberty Mutual Insurance (2014) estimated the cost of disabling workplace injuries to employers at $59.5 billion a year. OSHA and the National Safety Council have reported similar figures. A CDC assessment of the occupational health and safety workforce (2011) found that demand for these professionals was growing at a rate that would significantly outstrip supply by 2021, suggesting that employers are increasingly seeking methods to reduce these costs.

Meanwhile, working in the United States has never been safer – between 1992 and 2013, workplace fatalities fell by approximately 40% (BLS 2013). While readers would be wise to read these figures with caution – the decline could easily be attributed to a shrunken manufacturing sector, increased automation in many secondary sectors, improved emergency and medical services, and a host of variables other than employers’ preventive actions – there is ample evidence that American employers are, by and large, more concerned than ever before with keeping their workers safe, not least due to the unprecedented costs associated with injuries. This suggests that other factors external to the
immediately discernible regulatory efforts of OSHA must be exerting economic pressures on employers to invest in managing occupational risks in the workplace, making the occurrence of accidents more expensive than their prevention. However, the view that employees rely primarily on OSHA to protect them continues to dominate literature related to health and safety.

Two costs are most commonly cited as “direct” costs of accidents to employers – insurance premiums and lawsuits. This study seeks to analyze the theoretical justification for these costs to establish whether insurance (particularly workers' compensation) premiums and tort liability may serve as stronger economic incentives to encourage employers to reduce accidents in their workplace. The theory behind these costs as economic incentives for safety, drawn from a combination of literature and interviews with people involved in the American health and safety system, is tested on a group of small to medium-sized Texas employers. If these are shown to be more effective financial deterrents, it could be grounds to orient future health & safety policymaking in a different direction, for example through increased regulation of the insurance industry, rather than seeking to expand OSHA’s regulatory role.
Theoretical Overview

A good starting point is to understand the goal of government regulation of occupational safety. An employer’s motivation to invest in a measure to prevent an accident can fall into three categories: voluntary, incentive, or coercive (Brody et al 1990). Ideally, a firm would invest in accident prevention voluntarily. In many cases, however, following societal norms of behaviour – such as protecting workers’ safety – may not necessarily be financially profitable. For much of the United States’ industrial history, for example, it was sadly cheaper to replace a dead worker than it was to engage in accident prevention measures (Hounshell 1984). In these cases, government intervenes to correct what have been termed “market failures” – situations in which the market alone does not provide sufficient incentives for the optimal allocation of resources. Regulation is thus intended to create financial incentives for economic actors to take actions that, for various reasons, would not otherwise be profitable.

The Occupational Safety and Health Act of 1970 and its regulatory likeness, OSHA, reflected a growing recognition that the rising accident rates in American industry, which had grown exponentially in the years following the end of World War II, were unacceptable in a liberal society that valued "safe and healthful working conditions" (OSH 1970). Almost since its creation, however, OSHA has come under attack from opponents who consider the agency’s enforcement activities an unnecessary burden, and supporters who consider the agency too weak to coerce unsafe employers to modify their behaviour.

Since, a number of economists, recognizing OSHA’s alleged ineffectiveness, have argued in favour of alternative – or at least complimentary – financial incentives on employers. These received particularly close attention from academics in the 1980’s, when OSHA’s very existence was disputed and its abolition seemed plausible (see Noble 1985, Knieser & Leeth 1995). These alternatives have generally fallen under one of two categories: insurance premiums and tort liability. Each of these will be covered at length below, but the basic premise is introduced here.

Tort law provides an interesting theoretical problem. Prior to the advent of workers’ compensation insurance, the market relied on these incentives to regulate worker
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health and safety, based on a system of common law negligence liability. In short, it did a poor job of it – as the system relied on employees’ ability to prove employers’ sole responsibility for the accident, lawsuits were rarely successful. One study estimated that only 13% of workers ever recovered any payments following an injury (Willborn et al 2012), meaning that even negligent employers faced a very low likelihood of incurring the full costs of accidents. Other authors have argued vehemently against tort’s deterrent effects (Pierce 1980).

More recently, however, it has increasingly been touted as an effective deterrent to workplace accidents (McEwin 1981, Stewart 1987, Landes & Posner 1987), particularly by opponents of the workers’ compensation system who claim that the “exclusive remedy” afforded by purchasing insurance effectively allows employers to neglect safety in their workplace with few repercussions (TXNS1). Tort’s proponents argue that it provides higher payouts, therefore serving as a stronger economic incentive (Posner 1972, Calabresi & Hirsch 1972), allows financial liability of accidents to be appropriately distributed to the parties at fault (Phillips 1985), and does not rely on an external agency for enforcement, as suit can be brought directly by the injured party. Giammarino (1999), studying the possible benefits of a voluntary compensation program in Canada, suggested that the increased competition from other sectors would make the workers’ compensation system more effective overall. Haas (1987) and others have advocated expanding tort liability under workers’ compensation, arguing that it could serve as more effective deterrents to accidents. One claimed that “absent a federal commitment to OSHA protections, employee torts are the only way truly to discourage employers from allowing dangerous workplaces to exist in wanton disregard of their employees' safety” (Tucker 1989).

Overall, these arguments have been considered purely theoretical, and while most of these authors advocate for expansion of employers’ tort liability in some form, they acknowledge that a shift to a purely tort-based system is unlikely to work. The state of Texas, however, has left employers free to opt out of workers’ compensation and expose themselves to tort liability – as many as 33% of employers (covering 19% of employees) chose to do so in 2012 (TDI 2012). Thus Texas offers a case study – our research into this
system finds not only theoretical defenses, but also practical arguments for tort as an effective deterrent to accidents.

**Worker’s compensation premiums** are recognized as another major financial incentive, and their role in motivating employers to maintain safe workplaces has received substantial study. Originally intended to correct the market failures described above, workers’ compensation insurance in its modern form arose in the United States in the early 20th century out of populist sentiment that tort was failing to provide adequate protections of workers (Guyton 1999, Howard 2002). Fishback & Kantor (1995: 652) argue that it arose from a “convergence of interests” between employers, employees, and insurance providers, with strong support from all major stakeholders. In what has since been termed the “great compromise”, workers gave up their right to sue employers in return for the guarantee of compensation regardless of fault.

For much of the 20th century, workers’ compensation was elective. By the 1990’s, following a National Commission on State Workers’ Compensation Laws (1972) recommendation, nearly every state government had passed mandatory workers’ compensation laws. The *requirement* that employers purchase workers’ compensation insurance represents a form of government regulation in itself, albeit through the creation of indirect economic incentives – it is generally termed “social insurance”. While it was primarily intended primarily to distribute benefits to injured employees, there was early on a recognition that workers’ compensation also served as mechanism to encourage prevention of accidents (see Moore & Viscusi 1990: 163, Fishback & Kantor 1995). Its ability to serve in that capacity has since received substantial study – Viscusi (1990: 513) claimed that workers’ compensation represents “by far the most influential government program for reducing workplace fatalities”. Chelius (1982), Butler (1994), Bruce & Atkins (1993), Worrall & Butler (1988), Butler & Worrall (1991), and a number of other studies have all found strong evidence that higher workers’ compensation benefits have had significant effects on fatality and injury rates.

The role of **experience modifiers**, a pricing variable intended to match the price of an insurance premium to an individual firm’s loss history, deserves particularly close attention. A fully experience-rated company that sees a drop in their accident rate will see a
corresponding drop in their premium – which is generally seen as a substantial cost of doing business – and will thus face an economic incentive to reduce their accident rate. On a firm level, several studies have shown that that firms with safety programs generally have substantially lower workers' compensation costs, and that the reduction in these costs tends to offset the cost of the safety investments themselves (Habeck et al 1998, Chelius & Smith 1993).

Some studies, however, have found weak links between insurance premiums and accident rates (Beausoleil 1984, Corpus 1986, Boden 1995), particularly in smaller companies. These studies raise valid issues which will be addressed below. However, even workers' compensation's most ardent critics acknowledge that effective prevention of occupational injuries under that system will produce significant cost savings for employers and thus act as a significant economic incentive (Spieler 1994) – those who have found the current system ineffective as a preventive mechanism have generally focused on the program's transaction costs.
Hypothesis

If these theories hold true, then, insurance premiums should act as a greater driver for health and safety in the workplace, as they are the largest and most consistent of the three costs likely to impact an employer's willingness to prevent accidents. OSHA regulation, as we will see, is inconsistent and its costs negligible to many employers. Tort law, while potentially subjecting employers to much higher costs in the event of an accident, requires certain conditions that the American labour market does not meet. To put it another way: insurance premiums are the greatest risk to an unsafe employer, as they represent the highest combination of likelihood and cost.

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<td>Tort law</td>
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<td>Workers' compensation premiums</td>
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Previous studies on this subject – financial incentives for safety – have, for the most part, focused exclusively on data on claims rates, and have neglected to seek the perspective of employers, whose actions these incentives are intended to influence. This study thus fills the gap by investigating employers’ perceptions of the incentives that they feel drive them. In addition, we look at the incentives shaping insurance companies’ behaviour.

The rest of the study proceeds as follow: first, we introduce our methodology. We begin the study by identifying specific shortcomings of OSHA regulation, based on the relevant literature. Then, we look closely at the theory of how other forces – namely insurance and tort law, which have variously been suggested as effective alternatives to regulation – can substitute or complement OSHA’s functions by creating financial incentives for employers to invest in preventive measures. Throughout the study, we refer to conversations with relevant individuals in order to establish whether, in a context where all three forces are acting alongside each other – the state of Texas – the theory of alternatives to regulation holds weight. In the final chapters, we present the findings of interviews with
28 small to medium employers, who were asked various questions related to their motivations to invest in safety measures. We conclude with a discussion of our findings.
Methodology

A qualitative approach was chosen for the conduct of this study in order to fully encapsulate the interaction of different systems affecting employers’ behaviour. While qualitative findings may not be generalizable (Cloke 2004), they allow for more depth (Patton 1990) and are considered useful for describing complex phenomena (Johnson & Onwuegbuzie 2004). Previous studies have been almost exclusively quantitative and have focused on the relationships between individual variables. The goal here was not to conclusively demonstrate that one external incentive or another is more effective, an endeavor which would require access to unreachable data and the ability to control for cross-firm and cross-occupational risk. Rather, the study sought to “map” the accountability and incentive structures within the American health and safety system, determining which costs were most visible and laying the groundwork for a further study to explore the relationship between regulation, insurance premiums, tort law, and accident rates.

The research intentionally sought the perspective of individuals responsible for diverse parts of the health and safety system. Each of the individuals cited in this report was chosen based on their positions in designing, regulating, enforcing, or applying health and safety procedures. Respondents include a range of individuals spanning the entire health and safety system; from senior safety inspectors, risk managers for middle to large-sized insurance companies, OSHA directors, to employees and managers of construction sites, activist groups, and labour unions (see Appendix B for a full list of occupational titles). In a second portion, we spoke to the owners and senior risk managers of 28 small and medium-sized businesses (see Appendix C for industry types). These also followed a conversational format, and sought to investigate employers’ perceptions of the different incentives. Data from these interviews was compiled to present the results statistically. The vast majority of these interviews were conducted face-to-face, allowing the interviewer to pick up on non-verbal communication such as such as voice, intonation, and body language (Opdenaker 2006).

Interviews were adapted to address those parts of the health and safety system that each respondent could comment on authoritatively, and for the most part did not follow a
structured format. However, every interview began with one crucial question: “what, in your experience, has been the greatest driver for H&S in the workplace?”

Potential weaknesses

This choice of methodology presents issues which could diminish the validity of the findings. Note, for example, that this study adopts a purely economic approach to answer the question – it assumes that employers, as perfectly rational actors in the market, will only invest in health and safety in their workplace to the extent that it nets a financial benefit to the company. This is corroborated by some studies in construction (Levitt 1975) and in industry more generally (Grimaldi & Simonds 1984), which found that financial incentives tend to have the most explanatory power with regards to employer behavior. However, there is ample evidence that more human characteristics may come into play in determining how safe an employee is under a certain employer – when asked what characteristics were common to workplaces with excellent safety records, by far the most common answer among all respondents was that it was an employer’s “genuine commitment to their employees' welfare”, a trait that any reader will recognize as difficult to quantify accurately. It consequently also assumes that the frequency and severity of accidents are controlled primarily by the preventive actions of employers, an assertion which – while supported by empirical evidence (Simard & Marchand 1994) – employers mostly disagreed with.

Furthermore, this study focuses disproportionately on safety – many respondents recognized the “health” aspect of Health and Safety as a separate domain worth its own separate investigation. This study touches upon the health aspect, but maintains the focus on safety because of space constraints.

The study focused on the state of Texas, both for the author's links there and for its unique legal system – as the only state in the United States that does not require private employers of any size to provide workers’ compensation insurance, it offered an environment in which employers themselves are free to choose exposure to tort liability. It thus allowed us to observe other forces acting on employers’ decisions in absence of
insurance premiums. Even within Texas, the interviewees were, in large part, based in the Dallas-Fort Worth or Austin area. Cultural and institutional factors may have coloured respondents’ answers to some degree (Pelto & Pelto 1978) – for example, Texans’ fabled aversion to government regulation suggests that the idea of tort-based incentives find particularly fertile ground here, in a way that they may not be replicable in Europe.

**Significance**

Texas regrettably holds the dubious honor of having some of the riskiest workplaces in the United States. Since 2000, the has had the highest number of workplace fatalities most years – a Texan worker has an 12% higher risk of death than a worker performing the same job elsewhere, with constructions sites 22% deadlier than the national average (Gordon 2014). If this study can advance even marginally our understanding of what works when designing external incentive structures conducive to maintaining safe workplaces, then its findings could presumably be used to improve the welfare of employees while reducing costs to employers and regulators alike.
OSHA

Having covered most of the literature addressing incentives for safety, our study begins with an overview of some commonly cited barriers to OSHA’s effectiveness.

Regulation, according to Hood, Rothstein and Baldwin (2001) can be understood as a combination of three control components: standard-setting, information-gathering, and behavior modification. A regulatory regime’s ability to correct a market failure will depend largely upon its ability to carry out these three functions. OSHA has come under fire on all three fronts, although most criticism has focused on the third – their ability to change employers’ behaviour. For the purposes of this study we thus focus on the behavior modification dimension, as our interest is in determining how various incentives shape employers’ motivations to invest in safety.

OSHA’s role in encouraging employers to keep their employees safe has been investigated at great length. With some exceptions, by and large, the outcomes of these studies have not looked promising. Viscusi (1979), McCaffrey (1983), Bartel & Thomas (1985), and Ruser & Smith (1991) all found little to no evidence of the agency’s impact on fatalities.

Accusations of ineffectiveness have generally fallen into two categories: either the agency is seen as the embodiment of government intrusion in the free market, needlessly imposing excessive costs on firms (Breyer 1995, Sunstein 2008), or it is seen as a “toothless tiger” (Weil 1996: 619) whose enforcement capabilities do not permit it to exert a sufficiently deterrent effect on employers. This paper will largely agree with the latter view, as our argument focuses on OSHA’s gaps, not its overbearingness. The data would seem to support this view – in FY 2014 OSHA conducted a total of 36,163 inspections, a fraction of the United States’ estimated 8 million businesses. While occasional stories of companies going out of business due to the costs of compliance receive considerable media attention, several studies (GAO 1996, McGarity & Ruttenberg 2002, Ackerman 2006) have shown that OSHA’s regulatory “burden” has mostly been overstated.
So why is OSHA considered weak?

First, OSHA suffers from a serious budget problem. OSHA funding has largely been characterized by political tug-of-wars - Democratic administrations, often blocked by Republican Congresses, have sought to increase its funding. Republican administrations attempt to gut it. As a result, OSHA’s budget has remained surprisingly stable – its enforcement budget has fluctuated between $200 and $250 million between 1980 and 2013 (US Federal Budget). However, that budget has not increased with the size of the American economy as a whole, which grew from $2.862 trillion ($8.09 trillion when adjusted for inflation to 2015) to $16.77 trillion in the same time period (World Bank 2015), with a 48% growth in the labor force (BLS 2015). OSHA today – which according to these numbers broadly resembles the same agency as OSHA in the 1980’s – is woefully unequipped to fully exert its regulatory authority in the new American economy.

As a result, its staff of 2,100 inspectors conducting approximately 40,000 inspections each year (OSHA 2014) cannot possibly cover the estimated 8 million employers in the United States (BLS 2012). At current rates of inspection, estimated OSHA, it would take over 100 years to inspect every workplace in the U.S. once (OSHA 2013). This means that an average firm suffers a very low likelihood of inspection, unless a serious accident occurs or a gross violation is reported. The “availability” heuristic (Kahneman & Tversky 1974) and “optimistic bias” (Weinstein 1980) suggest that most employers and senior managers discount either scenario as unlikely, meaning that they are not likely to view OSHA fines or even inspections as a serious risk. The likelihood of an inspection is recognized in most major studies as a crucial component of an employer’s willingness to comply, and it is almost always included as a heavily weighted variable in calculations of deterrent effects of OSHA enforcement (Viscusi 1986, Weil 1991). Thus the agency’s inability to maintain a vigilant presence diminishes its coercive effect on employers.

Another common criticism is that the penalties available to OSHA are too low to compel compliance with its standards – the cost of paying fines for noncompliance tends to be lower than the cost of implementing OSHA’s standards (see Shapiro & Rabinowitz 2000), so a perfectly rational employer does not face a strong incentive to become fully
compliant. OSHA’s fines are capped at $7,000 for each violation, and $70,000 for serious or repeated violations. Citations are almost always much lower than this: in FY 2008, the average citation was for $800 (Rhinehart 2008). In approximately 12% of cases, OSHA has failed to collect fines at all, and often settles for sums substantially lower than those initially levied (Hamby 2012). Even once it has detected significant violations, its recourses are limited - a report by the New York Times found that in 93% of cases that OSHA concluded a worker had died because of an employer’s "willful" safety violation, the agency declined to seek prosecution (NYT 2003).

OSHA’s supporters tend to agree with these assessments. An AFL-CIO report (2015) concluded that OSHA is chronically understaffed, and issues penalties too low to be effective deterrents. Even the agency’s starkest defenders have described OSHA as “a picture of regulatory dysfunction” (McGarity et al 2010: 1).

A third fault relates to the ineffectiveness of the most commonly cited standards. One former official (HS-RD) held that OSHA’s management culture played an enormous role in its ineffectiveness – the organization is driven by metrics, he explained. An inspector is rewarded for how many violations he can bring back to headquarters, not how safe inspected firms become. The goal, lamented another inspector, is no longer to protect workers’ safety, “it’s to get your numbers up to quota. That forces the inspectors to nitpick: we’re looking for minnows, not whales." (HSI1). When asked whether the enforcement of these rules and regulations truly translated into safer working conditions, the former official shook his head (HS-RD):

“If you look at the kinds of violations that we’re finding, they’re really not related to what’s actually hurting people. Look at it this way: 80% of accidents are caused by activities. I’d say maybe 15-20% of accidents are from physical things. Now, you look at the citations, what do you find? They all go to the physical things, because they’re easier to observe and validate.”

This assertion is supported by a finding that academics in the field of risk management have been aware of for some time: accidents are socio-technical events, generally arising from the interaction between people and technology (Turner 1978, Hood & Jones 1996). Exclusive focus on physical standards is ineffective to prevent accidents. As
such, OSHA’s *design* standards have been the subject of a great deal of criticism from academics and organizations that argue that the agency’s goals would be better met with performance-based standards (*Viscusi 1996, ASSE 2009*). The agency itself has long recognized this (*OSHA 1999*) – however, as with all its standards, progress has been slow and adversarial.

Several studies have corroborated this (*Weil 2001*). The most frequently cited standards across all industries are often design-based. Employers interviewed described the frustration with the “hazard communication” standard, for example, which requires employers to display warning signs near most hazards – as the 2nd most frequently cited standard, it is perceived as one of the most difficult to comply with (*Janicak 1996*) despite limited evidence of its impact on safety (*HS-RD, Hood 1995; see Slovic 1986 and Fischoff 1995 for problems with modifying behavior through information provision alone*). In contrast, citations for personal protective equipment – demonstrated to have the most marked impact on workplace injuries (*Haviland et al 2010*) – are missing from the list of most commonly cited standards. This is likely because employers generally have at least a few days to prepare for an OSHA inspection, and workers are told to be extra vigilant on inspection days. “The lack of PPE is more easily corrected on short notice than, say, building new scaffolding“ (*ASSoSEP*).

Now, these views may not be entirely warranted – a study by *Haviland et al (2010)*, reconfirming the findings of *Mendeloff & Gray (2005)*, found distinct deterrence effects of OSHA enforcement. In these studies, inspections that resulted in penalties decreased both accidents related to standards as well as those that were not, suggesting that inspections had a broader impact on managers’ attention to safety. *Scholz & Gray (1993)* found “significant specific deterrent effects” in OSHA enforcement, particularly when the agency levied fines. *Weil (1996)* found strong links between enforcement and compliance, although he was not able to demonstrate that compliance resulted in safety. *Robert & Keeve (1999)* and *Baags et al.* found that OSHA could have complimentary effects, with workers’ compensation premiums tending to decrease at firms following inspections.

In addition, some of the other most commonly cited standards – relating to fall protection and electrocution – correlate quite well with two of the “fatal four” accidents
accounting for 57% of worker fatalities – falls and electrocution (OSHA 2014). Many of OSHA’s standards have received specific attention and conclusions have varied – although some standards have come under criticism for their futility, others have had a demonstrably significant effect on injuries and fatalities. OSHA’s “lockout/tagout” standard, for example, has been credited with 55% annual reductions in lockout-related fatalities between 1990 and 1997 (McGarity et al 2010).

However, one commonly cited study found that, after reaching its peak in the 1980’s, the agency’s impact declined steadily through the 1990s and disappeared at workplaces with over 250 employees (Gray & Mendeloff 2005). In addition, the studies cited above focused mostly on firm-level deterrent effects – as argued earlier, OSHA’s limited contact with most employers means that even if it does reduce injuries/fatalities in the establishments it covers, its inability to cover the majority of employers limits its impact on accident rates.

Concluding this section, we have established that three characteristics limit OSHAs contribution towards workplace safety:

- Probabilistically speaking, employers are unlikely to encounter OSHA in the first place.
- Its fines are generally too low to fully incentivize employers to invest in safety.
- There is little evidence that standards cited by OSHA inspectors result in decreased accident rates.

While this is by no means an exhaustive list of its shortcomings, a review of the relevant literature will reveal that these are the most commonly cited ones. Note that this study is limited to the “behaviour modification” dimension of regulation – equally complex criticism of OSHA’s slow and adversarial rulemaking process (standard setting) and the limited data of which it disposes due to narrow reporting requirements (information gathering) have received scrutiny, but will not be covered here.
Insurance

As noted, nearly every respondent considered individual employers’ “genuine commitment to safety” to be the most decisive characteristic in how likely he or she was to invest time and capital in safety in the workplace. When pressed to consider more practical factors, however, approximately half agreed that a rise in insurance premiums was the largest cost that an employer was likely face in the event of an accident (the other half cited OSHA fines). One risk manager for a construction contractor, lecturing a room full of safety professionals, stated: “all this safety and health regulations, all these rules that we deal with – where do y’all think it’s coming from? It’s all the insurance companies“ (SB1).

Insurance companies are well poised to play a strong role in occupational health and safety for several reasons. First, they share a similar (although not identical) concern for maintaining workers safe – while insuring a risky company, an insurance provider can simply absorb the cost in the premium. However, once they have entered a contract with a client, the insurer has an incentive – at least in theory – to help the client avoid accidents, as the provider itself will bear the costs related to injuries or fatalities. This will be discussed in detail below.

Next, insurance companies face none of the same legal or financial barriers to inspection. By entering a private contract to own the client’s risk, the provider can (and usually does) stipulate that the client submit him or herself to inspection. Representatives of five different insurance companies confirmed that they conducted risk assessments on their clients’ operations before any renewal. An insurance company, as we will see, will undertake more detailed inspections only when it is financially profitable to do so, adopting a highly risk-based approach to inspection and focusing only on the companies which have experienced the highest accident rates in the preceding year. Rather than citing individual standards to meet quotas, loss controllers look for the presence or absence of systems that would effectively reduce accident rates. Thus, an insured client is virtually guaranteed to come in contact with their provider more often than OSHA.

Finally, insurance premiums represent what one loss controller called a business’s “largest impactable cost” (LC1). It acts as a significant differentiator – a difference in claim
rates to a medium-sized company can mean the difference between a $500,000 premium and a $750,000 one. In industries where profit margins can often be measured in single-digit percentages (see Yahoo! Finance 2015), such a drastic difference in costs can mean the difference between a profitable company and a loss-making one. A company can choose to rent cheaper property, pay lower wages, and pass some costs on to consumers, but in the end, these are relatively static costs which will be determined by the company’s needs. However, workers’ compensation costs can be reduced in the course of the company’s operations.

Thus, where OSHA fails to improve safety in part due to its limited reach, low penalties, and ineffective standards, insurance companies have wide reach, pose a credible economic threat to unsafe clients, and maintain risk-based standards. There is no “risk” that a company will come in contact with their insurance company – by entering a contract with a provider, a company is guaranteed to provide regular updates to their provider and claims will be reported. Increases in accident rates (assuming that these are accompanied by increases in claims) will result in increased premiums, which are seen as a large cost of doing business. Insurance companies are able to maintain performance-based standards, because they will not penalize employers unless a certain activity has actually resulted in accidents. Theoretically, then, insurance contracts should act as an effective substitute for OSHA. There some evidence to support this – as noted above, studies on the evolution of mandatory workers’ compensation laws found that, for the most part, these laws were accompanied by decreases in fatality rates.

This fact is recognized up to the highest levels of government regulation in Texas – following scathing accusations of apathy to safety in a Dallas Morning News article in 2012, the office of Governor Rick Perry stated that: “Employers with workers’ compensation insurance coverage have incentives to provide safe workplaces through their workers’ compensation premiums. Employers with poor safety records experience higher premiums through their experience modifiers.” (Gordon 2014).
Experience modifiers

At this point, the reader may benefit from an explanation of how insurance premiums are calculated. A company’s payroll is first placed into one or more of 600 occupational classifications in increments of $100 to provide a relatively accurate measure of the company’s exposure to risk. On the basis of these classifications, it is assigned “manual rates” reflecting the average loss history of that industry’s classification. These rates are calculated by rating bureaus – the largest such bureau, the National Council on Compensation Insurance (NCCI) combines claims data from hundreds of insurance carriers to calculate appropriate rates for each class. Note that Texas operated independently from the NCCI until July 2015, and its recent shift to NCCI manual rules is expected to cause premiums to rise.

The premium rate is generally expressed as a sum per $100 of payroll for each class. Tompa et al (2007: 86) point out, however, that if premiums were based solely on average industry risk – as in pooled risk systems – then there is “little incentive for firm-level preventive efforts”.

Insurance providers therefore tend to take into account individual companies’ claims activity into the calculation of the premium. This variable, variously referred to as an “experience modifier” or an “experience rating”, measures the individual company’s claim activity against its industry average, and then charges the premium accordingly. The final premium is the following calculation:

\[
\text{Manual rate} \times \text{payroll} \times \text{ExMod} = \text{premium}
\]

Thus, a company with an ExMod of 1 would pay exactly the rate set up for its industry; a company with an ExMod of 2 would pay double the rate, and so on. To give the reader an idea of how much deviation is likely under this system, our respondents were asked what a “good” and “bad” ExMod looked like – rarely, said one claims adjuster (CA1), they had seen an ExMod fall to slightly below 0.5. The highest any had seen was over 3 – the company, the manager reported, went out of business shortly afterwards.
Note that the “degree” of experience rating is also variable - as the size of the firm’s loss experience increases, greater weight is given to the firm’s individual experience and less weight is given to the industry rating. Thus, the larger the firm (and the larger its claim history), the greater the degree of experience rating. In this way, the largest firms will pay premiums most reflective of their individual experience.

Thus, liability insurance can provide incentives for accident reduction only if a firm is fully experience-rated – the insurance system distributes each employer’s liabilities accordingly (Poole 1982: 328), and each employer in the pool will pay a premium exactly proportional to their level of risk. One employer (SchD1) pointed out that full experience-rating is the exact equivalent of self-insurance – a firm that bears its own costs in the event of an accident, rather than shifting them to a third party, would hold the greatest incentive to reduce the occurrence of accidents.

Experience-rating intentionally assigns greater weight to accident frequency over severity (NCCI 2015), reflecting the general recognition that employers can control the probability of an injury better than the severity (see Smith 1973). Statistically speaking, the cost of an accident is less predictable than its occurrence. An employer can, for example, implement controls to ensure that employees always secure a ladder before scaling it, which would prevent falls from ladders. When an employee does fall from a ladder, however, the resulting injury – a broken back (expensive), or a sprained ankle (less so) – is nearly impossible to predict. Thus, for two employers with identical costs, the one with the higher frequency of accidents will almost always have a higher experience modifier and pay higher premiums.

This is further reflected in the diminished weight given to very large claims. According to some of the claims adjusters interviewed, underwriters will very often choose to omit larger claims, considered “shock losses” which had very small chances of reoccurring. The NCCI (2015: 2) is quite explicit in its guidance: “very large losses are so infrequent that including the entire portion of the claim beyond a certain level in the experience period reduces the predictive ability of the Plan.”

A number of studies have demonstrated moderate to strong empirical evidence for the preventive effects of experience-rating companies (Russell 1974, Ruser 1985, Ruser
1991, Bruce & Atkins 1993, Kralj 1995, Hyatt & Thomason 1998). Overall, most of these studies agree that experience ratings do have a measurable impact on the frequency of injuries, although they vary on the extent.

However, no study to date has found strong evidence for experience ratings' effect on injury severity - in some cases, decreases in injury frequency were even accompanied by increases in injury severity. Ruser (1993) and Smith (1992), in reviews of the relevant literature, voice their disappointment with the inability to find a significant correlation between experience ratings and injury costs.

Throughout the research, one thing stood out – insurance companies, better than any other respondent, had long understood the role that the ExMod could play in reducing accident rates. Their own incentives, however, merit further explanation.

Texas is one of 11 states where insurance providers are required by law to provide free risk management services to their clients upon request. This department is variously referred to as “loss control” or “risk management” in insurance companies. Loss control is not seen as a profit center – the profit to the insurance provider in reducing the client’s risk is usually not sufficient to offset the cost of hiring consultants and providing free services to clients. Thus, the insurance provider has little incentive to advertise the service – in fact, one of the Texas Department of Insurance’s principal regulatory roles is to ensure that insurance companies are complying with the requirement, a fact which in itself implies that the provision of loss control services is seen as somewhat of a burden.

One inspector with a large insurance company agreed:

“It’s an essential part of an insurance company’s business to keep a loss control department, but you can’t do that for all your clients, otherwise you’re going out of business. So what we’ll do, is we’ll find the bad apples, usually the ones with the top 5% increase in their ExMod. We’ll go to them, and tell them: hey, what’s going on here?” (LC2)

Thus they tend to focus their inspections only on the highest-risk clients, generally those clients which had demonstrated an unusually high loss history in the preceding year. One senior loss controller described it as serving a “marketing function”: 
“If we can break even, we’re happy. But the main point is to benefit the client. Once they see their premium go down, they can tell that we care about helping them get the best rates, so they’ll stick with us. If they’re seeing their premium skyrocket, sure we can put that in our premium, but most clients will just go rate-shopping at that point and switch insurers.” (LC3)

Crucially, these loss controllers recognized that their emphasis on *processes* tended to focus on factors that had a more measurable impact on real accident rates. They adopt systems-based approaches to their inspections that evaluate whether the insured has in place certain controls, reporting procedures, and accountability structures. A checklist for loss controllers at one insurance company contained such items as “incidents are investigated for root causes”, a far cry from OSHA’s focus on individual violations.

Clients, for their part, tend not to see these loss control services as a differentiator. Only one of the employers interviewed had requested these services of their provider. This was somewhat surprising to the author, as from a purely economic standpoint, a rational client would presumably appreciate the opportunity to lower their premium. Not so, according to most of the loss controllers interviewed. A recurring theme was that clients seldom understand the relationship between their EMod and the premium, an assertion corroborated by several academic studies (Everett & Thompson 1995, Hunt & Lance 1989). As the experience modifier is generally calculated based on the previous three years of loss history, it is seen as a *lagging indicator*. The EMod – which is based primarily on loss history – is almost never changed *ex ante* due to the employer’s actions. In other words, a client will not see an immediate drop in their premium in exchange for implementing a more comprehensive safety program – the employer will only see the hypothetical safety program’s effect on the premium after it has resulted in decreased claims rates over time, removing the instant gratification of seeing their premium drop.

In addition, since most employers are uninformed about the exact formula used to calculate their ExMod, they generally cannot calculate a direct correlation between a certain safety measure and a lower premium – it would be difficult, for example, to establish that their premium would fall by 10% with a $10,000 investment in handrails. Thus clients will tend to weigh more heavily the immediate costs of the safety measure, reducing the likelihood that they will consider the long-term effects of the investment.
Shortcomings with insurance

Premiums’ incentive effects suffer from another major shortcoming: that they may not function as a reliable deterrent to accidents for smaller companies, which account for a larger percentage of injuries and fatalities in most industries (Suruda & Wallace 1996, Buskin & Paulozzi 2007, Ozme et al 2015). With regards to the effect on employer behavior, McGarity & Shapiro, arguing that opponents of OSHA overstate the effect of workers’ compensation, correctly point out that since the smallest companies are the least likely to be experience-rated, they pay premiums that have no relationship to their accident rate and thus experience the “least economic incentive to take safety precautions” (McGarity & Shapiro 1996: 602).

One RAND study (Neuhauser et al 2012), however, found that claims at smaller firms that became experience-rated fell 6% - 9% compared to firms that were not - nearly all of the reduction was attributed to falling claim frequency, rather than a decline in claim costs. While experience-rating may not cover the majority of firms (up to 85% of firms may not be experience-rated, according to one estimate; Worrall & Butler 1988), they cover 80% of employees (WICRB California 2014) since larger firms, while fewer in number, employ more people. McGarity and Shapiro’s argument may hold true, but this does not necessarily diminish the argument for workers’ compensation – rather, it is grounds for extending experience rating to smaller companies. In 1972, the National Commission on State Workmen’s Compensation Laws (1972) recommended just that.

Shortly afterwards, Rusell (1974) argued that the financial incentives for safety were “negligible” for small firms, demonstrating that elasticity in the experience modifier was greater for them. The Exmod, then, penalizes firms that have a lower accident rate to begin with, as smaller increases in their accident rates will result in higher percentage increases in their premiums. In our research, this was reiterated by several loss controllers, who related to the author that they found the experience rating system was unfair to smaller companies (LC2, LC3, SI1).

Workers’ compensation as a financial incentive also suffers from several other shortcomings which merit investigation of their own. A number of studies have found that
insurance-based incentives induce employers to reduce costs by other means (Ison 1996, Shannon & Lowe 2002) for example discouraging employees from filing legitimate claims. A substantial body of literature has focused on the relationship between claims filed and the real injury rate, as scholars disagree on the extent of underreporting. Industry meetings display great concern with fraud, a debate that will not be addressed here. Accusations that doctors and lawyers manipulate the system to their advantage pervade the public discussion. The financial incentive produced by experience-rating companies thus may not manifest itself exclusively in the prevention of accidents, but may lead to other counterproductive behaviours to reduce costs. The extent to which these behaviours undermine the safety effects of workers' compensation has been a source of debate for several decades.

Finally, insurance's main advantage lies in the virtual guarantee that injuries will result in higher premiums. However, insured workers are far from guaranteed to receive compensation – in Texas, nearly half of all employee claims are denied or disputed, and state data shows that when disputes escalate to arbitration by the Division of Workers’ Compensation, workers win in less than 31% of cases (Root 2014). This reduces the probability that the employer’s premium will increase in the event of an accident – thus the likelihood of injuries resulting in higher costs to employers may be substantially lower than that assumed in most models. Workers’ compensation may not serve fully as the deterrent that theoretical arguments would indicate.
Tort Law

There are signs that the current system may no longer warrant reliance on the workers’ compensation system as either a reparative or preventive mechanism. The “great compromise” no longer appears to benefit workers as it was intended – separate reports by OSHA (2015), ProPublica and NPR (2015) have found that “changes in state-based workers’ compensation insurance programs have made it increasingly difficult for injured workers to receive the benefits that they are entitled to”. Employers’ payments account for less than 20% of the financial cost of workplace injuries and illnesses, with over 50% of the costs borne by workers (Leigh 2011).

Possibly because the workers’ compensation system has been taken as granted, the question of whether an alternative system is better – and who it would benefit – has received surprisingly little attention in an academic context. As noted in the literature review, several authors have argued in favour of tort liability as a financial incentive to prevent accidents, but only a handful of studies have investigated the effects in practice.

Faced with the alleged failure of workers’ compensation and the perception that premiums are an increasingly untenable cost, alternatives begin to appear increasingly viable. Texas has had the only truly optional workers’ compensation system until recently, but legislation passed in Oklahoma, Tennessee, and South Carolina has expanded the number of employers who can legally refuse to purchase workers’ compensation benefits for their workers. Given this slow, but possibly progressing trend, it is crucial that both the successes and shortcomings of the Texas system receive further study in order to design an opt-out option that benefits employees and employers alike, rather than just shifting the economic impact of injuries to one or the other party.

The current Texas system is a result of the perception in the 1980’s that the “great compromise” had become an undue cost. Between 1972 and 1992, US employer costs for providing workers’ compensation rose from $6 billion to $61 billion, an annual growth rate of 12.5% (Boden 1995). Texas, at the time, had some of the highest rates in the nation.

Texas is now unique among American states as the only state that does not require private employers of any size to provide workers’ compensation. Employers who have
opted out are known as “non-subscribers” to the workers’ compensation system, and lose certain common-law defenses in the event of an accident: contributory negligence and voluntary assumption of risk. As of the last survey (TDI 2014), approximately 114,000 (33%) of Texan employers were estimated to be non-subscribers, covering 19% of workers in the state. This rate has declined since 1990, but overall has remained fairly stable. Approximately 70% of these employers provide alternative benefit plans, and surveys of workers have broadly indicated satisfaction with the plans – they generally include shorter waiting periods, higher compensation, and wider coverage (workers’ compensation, for example, almost never covers emotional or psychological damage) (Minick 2015).

The few publicly available studies of the Texas system have mostly come to the same conclusion – that the ability to opt out of workers’ compensation results in significant cost savings to employers (Morantz 2010). This is supported by TDI surveys, in which employers choosing to opt out of the workers’ compensation system have repeatedly cited untenable costs as their primary reason for doing so (TDI 2014).

Nonsubscription is certainly an attractive option to employers – it essentially limits external regulation to OSHA supervision, and unlike workers’ compensation, limits their financial responsibility to accidents that they caused. It also appears to serve as a good incentive for safety – revisiting OSHA’s shortcomings, nonsubscription:

- Potentially opens an unsafe employer to large penalties from every injury for which he or she is responsible.
- Allows employees to sue for the exact cause of their accident, meaning that financial costs are targeted.

Employers thus face an incentive to prevent accidents, rather than just comply with the most commonly cited standards, as any accident could theoretically result in large costs.

“Nonsubscription comes with hefty responsibilities”, explains a representative for TXANS, the largest non-subscription lobby in the state. “You have to have an effective safety program in place, otherwise you as an employer are facing a much larger risk when something goes wrong“ (TXNS1). Indeed, TXANS documents emphasize the importance of responsible non-subscription – when Walmart drew substantial media attention with its
decision to opt out of workers’ compensation in Texas, TXANS publicly cautioned the company not to skirt its responsibilities to maintain a safe workplace, as doing so would jeopardize non-subscription’s future (TXNS1).

But this raises the crucial question of whether this form of unsupervised self-regulation provides sufficient incentives to reliably coerce an employer to invest in safety measures. Under this system, the employer is only accountable to OSHA, which as we have established, does not serve as a sufficiently deterrent risk to incentivize most employers to maintain safe workplaces. By one lobby’s admission, nonsubscription is "dominated by employers with high occupational injury frequency and severity" (TANS 2015).

One lawyer who specializes in injury claims stated that “Most of the clients I’ve represented […] didn’t know about their right to sue at first, or if their employer carried workers’ compensation”. He claimed that “nearly all” of his cases had been settled out of court to the plaintiff’s satisfaction. However, he admitted that: “employers are just too protected under this system, even if they screw up, it can be massively difficult – and expensive – to prove that“ (LW1).

Employees, for their part, are unlikely to ever actually make use of their rights - among those interviewed in construction firms, the idea of suing their employer for damages seemed laughably distant. This is particularly true of the most dangerous industries – agriculture and construction – where undocumented immigrants, who prefer to avoid the legal system when possible, are represented disproportionately (WDP 2013). The modern tort system in Texas looks suspiciously similar to the pre-workers’ compensation one, suggesting that the probability of penalties – even in the event of an injury – is too low to present a serious risk to the unsafe employer.

Injuries under this system are not reported to anyone unless they meet certain OSHA reporting criteria (see OSHA 2015), meaning that even companies with high injuries rates will not draw increased scrutiny unless a worker takes action – note that under workers’ compensation, most injuries which do not meet OSHA reporting requirements will at least be reported to the provider, and thus force the employer to incur some material cost to respond to the injury whether the worker eventually receives compensation or not.
The shortcomings with tort as a preventive measure have been well-documented (Schwartz 1978, Ashford & Johnson 1982). To work well, such a system would rely on perfect information on the part of both the employer and the employee, who could then make carefully calibrated judgments on accident avoidance. The literature has shown that this is rarely the case. In addition, the arguments in favour rely on the assumption that the legal system is open, with equal bargaining power to all. This, too, is questionable (Kennedy 1982). If the theoretical evidence holds true, non-subscribing employers should be characterized by significantly higher accident rates, as they would feel less exposed to financial consequences of injuries.

However, as the TDI tends to base its studies of accident rates in Texas on workers’ compensation claims, reliable statistics on injury rates for nonsubscribers are not available, precluding this debate from being solved with a simple comparison of accident rates. Butler (1996), comparing fatality rates and nonfatal claims rates between subscribing and non-subscribing companies, found that fatality rates were similar between subscribing and non-subscribing firms – however, as Morantz points out, “the data did not allow him to control for cross-firm disparities in risk”, and thus his findings could not conclusively prove a difference in safety. Chelius (1976) and Schwartz (1994), comparing the deterrence effects of no-fault and strict liability systems, were unable to find strong evidence to support either over the other.

Respondents who, for various reasons, deal regularly with both subscribing and non-subscribing employers – including OSHA inspectors and safety consultants – invariably claimed that there did not seem to be a common thread among safe employers. The employer’s subscription status did not, according to them, seem to have strong predictive value. “I’ve seen it go both ways”, said one OSHCON consultant, summarizing nearly every other respondent’s take on the issue:

“I’ve seen guys who don’t carry workers’ comp, where an employee gets injured, and they’ll pay their hospital bills, no questions asked. They’ll either pay them a full wage, or put them to work on some light-labor stuff. Then I’ve seen guys – and this is rare – where the employee gets injured, and it’s over for the employee, they’re going on welfare. There’s really no way to tell, just based on if they carry workers’ comp or not. It really depends on the person.” (OSHCON1)
In an extensive study of the merits and shortcomings of the Texas system, Chief Justice Phil Hardberger (2000) concluded that the system is “inadequate for the seriously injured employee”. For the vast majority of injuries, which tend to be quite minor, the system works well. After the first 104 weeks of recovery, however, the benefits decreased dramatically. Hardberger recommended either making workers’ compensation mandatory for all employers, or regulating the alternative benefits plans to ensure that they provided adequate protection. One union leader in Oklahoma pointed out that “all the changes have done is shift the cost burden from the employer to the injured employee” (UNOK1). This assertion, made by approximately half of the respondents on the workers’ side, is supported by the data collected by the TDI. One such survey found that only 42% of workers who lost more than one year of work reported that they had received wage-replacement benefits for the full duration (TDI 1997). 46% of injured workers said they “suffered financial hardship” as a result of their injury (TDI 1997). If the merits of tort as a deterrent mechanism are open for debate, the system’s reparative value is not – a voluntary workers’ compensation system clearly puts the worker at a significant disadvantage.

Another limitation to these claims is in the definition of the employer’s duty. Texas employers are required to maintain a “reasonably safe workplace” (Texas Labor Code 1995). Smith & Johnson (2010) have demonstrated that state courts have historically ruled that duty to be quite narrow, so by attacking the “proximate cause” of the accident in question, employers are generally able to claim that an injury was not foreseeable and thus did not fall under their duty.

Note that the current system represents a marked improvement – prior to 2001, employers often required that employees waive their rights to sue as a condition of their employment, effectively providing no deterrent effect and leaving the injured employee with no recourse. The Texas Legislature amended this in 2001 (Texas Labor Code Annex § 406.033). However, employers are still permitted to require employees to submit to mandatory arbitration – chosen by the employer – in the event of injury. Most stipulate this as a condition for an alternative benefit plan (see Ohana 2011). This further reduces the
likelihood that the employer will be subject to significant financial repercussions in the event of injury, consequently diminishing the economic incentive to reduce accidents.

Similar systems in other states appear to suffer from even greater shortcomings. The Oklahoma option, passed in 2013, requires that employers “provide benefits that are equal to or greater than that under the state workers’ compensation system” (OK S.B. 1062). In return, employers have maintained the exclusive remedy. However, the Oklahoma system lacks an adequate mechanism to regulate those alternative benefits, meaning that employers there were essentially given full protection from liability without the cost.

Tort-based incentives, reinforced with direct regulation, seem attractive as they certainly allow employers more choice in their risk management options. However, the realities of the market suggest that such a system would be unsuitable to prevent occupational accidents – first, the system only works if both parties have access to equal information about the risks faced, and the information disparities in the current system are apparent. Second, the unequal access to the legal system precludes employees from utilizing their rights to the full extent envisioned by proponents of tort-based incentives. Finally, tort has been demonstrated to deny compensation in the majority of cases. Reliance on tort, then, seems to provide insufficient deterrent effects to employers, as it shifts the risks and the costs disproportionately on the employee. Although most do not, employers can essentially ignore tort litigation and workplace safety where the threat of successful litigation is minimal.
Employers

Predictably, employers tend to gravitate towards the option that will save them more money in the long run – this is evident in, for example, rising rates of nonsubscription when insurance premiums rise, and vice versa (TXNS1).

This portion of the research was conducted among 28 small and medium sized employers. Approximately half of the employers purchased workers’ compensation insurance. For the purposes of this study, risk managers at private and public companies were considered “employers”, since their function embodies the company’s duty to manage safety risks to employees. The reader is urged to consider this information anecdotal – while it provides insight on the various motivations for purchasing insurance and investing in safety, it was not based on a fully randomized sample, it covers almost as many industries as there were respondents, and thus may not be generisable to all employers in Texas.

A good measure of an employer’s willingness to take preventive measures to maintain a safe workplace – reiterated by nearly every respondent as an indispensible characteristic of a safe company – is the implementation and adherence to a detailed safety program.

Having a safety program, however, is not sufficient, and an ongoing challenge that various safety officers and risk managers repeated related to the difficulty in ensuring that employees were taking safety programs seriously. Various risk managers and OSHCON inspectors, who arguably play the most “investigative” role out of any of the individuals interviewed, recalled that one of their biggest frustrations is asking an employer about a safety program, and receiving a variation of the following answer: “oh yeah, we’ve got a safety program. Let me find it around here…somewhere…somewhere”, as they rummage through dust-covered files to find the long-ignored document. Securing adherence to the program as a living document is a challenge in itself.

Few respondents questioned the value of these programs when they were implemented correctly – Lee Clarke’s work on “fantasy documents” (1999) would suggest that these safety programs reflect employers’ well-meaning but ineffective attempts to validate their preventive measures to internal and external clients, rather than genuine efforts to reduce accident rates. Most studies conducted on the subject have found evidence
that they do have significant impact (Robson et al 2007). In Texas, a DWC commission requiring the most hazardous workplaces to implement safety programs netted a 63% reduction in injuries between 1992 and 1995 (OSHA 2012). For the purposes of this project, we take experienced safety professionals’ claims at face value, and assume that it the provision of a safety program least indicates a greater concern for safety than an employer that does not.

Out of the employers interviewed, 57% purchased workers’ compensation insurance (compared to 67% statewide). Of these, all reported that they were experience-rated. However, when asked “to what degree?”, none had a clear answer – most were confused by the question, corroborating the loss controllers’ assertions that employers tended not to know how their experience rating worked. Furthermore, when asked to tell the author their ExMod, over half claimed not to know.

Several of the subscribing employers did report that when faced with an accident, their first thought – after the employee’s safety, of course – was how their premium would be affected. However, only 31% reported having taken proactive measures with the explicit goal of reducing their premium.

Approximately 81% of employers who purchased workers’ compensation had a safety program in place. Of these, 38% had purchased “ready-made” safety programs from their insurers – 46% developed their own safety program, although it is unknown whether they were guided by loss controllers or external consultants to develop it. Only 15% had implemented a program in response to an OSHA recommendation.

In contrast, only 41% of non-subscribing employers had a safety program. 80% of these stated that they had implemented their program in response to OSHA recommendations. While we cannot comment on the firms’ accident rates, it appears that workers’ compensation did act as a greater incentive for employers to at least invest in a visible preventive measure. This is likely due to the emphasis that insurance companies place on these programs. Non-subscribers, the majority of which are not members of TXANS (which does strongly encourage safety programs), provided these programs at a lower rate. This suggests that insurance companies “pre-empt” OSHA regulation – the nonsubscribers who had not come in contact with OSHA saw little need for (or were not
aware of the benefits of) a safety program, but an employer who purchased workers’ compensation would likely have heard from their provider that they should implement one.

Only one of the employers, a warehouse manager (WrH1), had made use of his insurance provider’s loss control services. While he had some awareness that it would result in decreased premiums, he did not state that this was his primary motivation for initiating the consultation: “well, I knew that I had the right to ask for this service, so I called up my insurance guy and I asked him to send someone over“. The employer reported being extremely satisfied with the result, and expressed his belief that it would lower his premium.

None of the non-subscribing employers interviewed reported having been sued, indicating either they did not wish to disclose this information, that they had perfectly safe workplaces, or that tort did not work to its full extent as an incentive to prevent accidents. One construction contractor that did not provide alternative benefits described a situation in which an employee had been injured going through (instead of around) a ditch – that employer proclaimed that “I didn’t fire him, but I’d told him enough times not to do that to where I didn’t feel too bad for him. I put him on some admin work until his leg got better, but it’s not my responsibility to pay for his medical bills“ (Cnst3).

When asked about OSHA inspections, both types of employers expressed some fear of the agency. Approximately 15% of employers of both types had undergone an OSHA inspection. Those that purchased workers’ compensation, however, appeared overall slightly less concerned with the risk of inspection and/or fines than nonsubscribers, with one medium-sized employer stating that “I’m not worried about inspections – I already keep a safe workplace. I don’t do safety for OSHA, I do it for my employees.“ (RtHm).

A greater percentage (75%) of the nonsubscribers, on the other hand, expressed disdain for the agency, using terminology like “going out of business” (Rst1), “intrusive” (Md1), and “oppressive” (Cnst3) to describe their hypothetical relationship with OSHA. Again, OSHA appears to have a more substantial effect on non-subscribers than those with workers’ compensation. Purchasing workers’ compensation thus appears to diminish the incentive effect of OSHA, as the employer becomes accountable to a more immediately visible institution.
Interestingly, most employers did not believe that their actions were the primary mover for safety in their workplace. While they recognized that they had a moral and legal duty to their employees’ safety, nearly all of them (23) declared that “I'll do what I can, but in the end it’s up to the employee to take care of themselves“. The idea that the employers did not feel fully in charge of their workplace might reduce their incentive to take preventive actions, as in their eyes those safety measures alone might not result in a better safety record or the sought reduction in premium.
Discussion

Each incentive suffers from shortcomings of its own, and each appears to work better in different contexts – a firm’s size, for example, appears to be a major factor dictating the extent to which one or another external lever will have a more pronounced effect on safety. Our analysis of current methods to address workplace safety shed light on the interaction of the different incentives shaping employers’ behaviour. Hearing the perspective of insiders – a feature which previous quantitative studies on the subject lack – we were able to reach several conclusions.

- Experience modifiers may serve as a powerful incentive for accident prevention. In practice, however, employers tend not to fully understand the relationship between their EMod and the price of their insurance premium. The association between implementing a safety measure and a drop in the premium price is not made sufficiently clear, and psychological processes suggest that the lack of a directly visible correlation between the two prevents employers’ serious consideration of these “indirect costs”. Our research uncovered only limited attempts to make explicit to employers the importance of their EMod – often seen as an impossibly complicated variable – in reducing their premium. According to representatives of insurance companies, those employers that do understand the correlation are among the safest, suggesting that when used properly, EMods do serve as a powerful incentive. **Insurance premiums are thus not used to their full potential as an accident prevention measure.** Further safety regulation could be geared towards requiring that insurance providers offer immediate premium discounts in return for the implementation of safety measures. This could follow a model similar to that which currently exists in Texas and 10 other states, by which insurance companies are required to provide free loss control services.
OSHA regulation may be more effective on small to medium employers, for several reasons:

- OSHA’s capped fines, which are negligible to larger companies, may have a greater impact in smaller companies. In the state of Texas, these companies are also the least likely to purchase workers’ compensation insurance, meaning that the agency’s resources would also have the greatest impact on these.

- Insurance companies themselves are less willing to experience-rate smaller companies, as their smaller loss histories have less predictive value. Small companies that do purchase workers’ compensation thus have little incentive to invest in prevention to reduce their premium, because they pay close to manual rates anyway.

Larger employers, who dispose of resources to calculate the optimal level of return on investment in safety and accident prevention measures, will likely be better served by experience rates. This would benefit OSHA itself – one former OSHA inspector expressed her belief that more inspections were better than more detailed inspections, because he would immediately identify the major problems in a given workplace – the rest of the time would be spent searching for smaller violations “just to meet my quota”. Given the option, he stated, it is better to conduct “48 one-hour inspections than one 48-hour inspection” (OSH1), even if the latter would cover more employees. OSHA regulation may thus be best geared towards smaller employers – which experience the highest rate of accidents – while larger companies – which employ a greater percentage of the workforce – may be better served by insurance-based incentives.

Despite its popularity in the American legal system, tort liability does not serve as a sufficiently powerful incentive for occupational safety, as it shifts both the costs and the risks disproportionately to injured employees, who often do not dispose of the same access to the legal system as employers. In addition, it provides insufficient incentives for employers to self-regulate, as the risk of high financial penalties is relatively low – only slightly higher than their risk of exposure to OSHA penalties – for a non-compliant
employer. Some authors have raised the idea of expanding insured employers’ liability. While this may merit further study, we have not identified strong evidence here for its effectiveness.

- Our interviews with employers corroborated the finding that they do not usually see a direct relationship between their premium and their investment in safety. While they did understand that their premium was a product of their experience modifier, most did not understand exactly how the ExMod worked and thus could not calculate a reduction in their premium resulting from the implementation of a certain safety measure. This very likely reduces the incentive to invest in safety, as the vague promise of an eventual decrease in premiums is insufficient to justify an investment to a numerical-minded business owner. Crucially, most did not see their own actions as the primary driver for safety in their workplaces, further reducing their perception of a relationship between their actions and their premium.

- The risk of an OSHA inspection seemed to have a markedly decreased effect on those employers that purchased workers’ compensation. This suggests that when an employer purchases workers’ compensation insurance, their main point of reference for safety becomes the provider – in other words, the employer becomes more accountable to the provider as an overseer of safety than to OSHA. Those that did not purchase workers’ compensation seemed to perceive OSHA inspections as a higher risk, even though the different types of employers had been inspected at a similar rate in the preceding 5 years (approximately 15% of each).
Conclusion

The hypothesis – that insurance premiums would serve as the greatest incentive to modify employers’ behaviour – appears to hold true, but only marginally. The more salient findings are (1) that insurance premiums are not used to their full potential (2) that OSHA regulation may be best focused on smaller companies, and (3) that purchasing workers’ compensation appears to reduce the effect of OSHA regulation.

While the above contributions to the existing literature may be valuable, this study fell short of its stated goals in other respects. Its breadth did not allow for an in-depth investigation of each detail – both tort and workers’ compensation are full of intricacies that could (and do) receive their own studies, but which we were unable to address here. Rather, this study served as a qualitative review of some of the major players in the American health and safety system. Future research should attempt to establish how combinations of these forces improves or reduces motivations for safety. Particularly, the reduced effect of OSHA regulation on insured companies – a phenomenon which, to our knowledge, has not been studied – warrants further investigation.
Appendix A: Forms
Thank you for submitting your Research Ethics Minimal Risk Checklist. This letter acknowledges the receipt of your checklist; your Research Ethics Number is MR/14/15-123, be sure to keep a record of this number and include it in any materials associated with this research. Approval is granted for one year from 5 May 2015.

Record Keeping:
In addition, you are expected to keep records of your process of informed consent and the dates and relevant details of research covered by this application. For example, depending on the type of research that you are doing, you might keep:

- A record of the relevant details for public talks that you attend, the websites that visit, the interviews that you conduct.
- The 'script' that you use to inform possible participants about what your research involves. This may include written information sheets, or the generic information you include in the emails you write to possible participants, or what you say to people when you approach them on the street for a survey, or the introductory material stated at the top of your on-line survey.
- Where appropriate, records of consent, e.g. copies of signed consent forms or emails where participants agree to be interviewed.

Audit:
You may be selected for an audit, to see how researchers are implementing this process. If audited, you will be expected to explain how your research abides by the general principles of ethical research. In particular, you will be expected to provide a general summary of your review of the possible risks involved in your research, as well as to provide basic research records (as above in Record Keeping) and to describe the process by which participants agreed to participate in your research.

Remember that if you have any questions about the ethical conduct of your research at any point, you should contact your supervisor, the Research Ethics office, or a member of your Department’s Research Ethics Panel for advice.

Feedback:
As KCL is currently trialling the Minimal Risk Process, you may be selected to provide feedback on the Minimal Risk guidance, form and process. You can also provide feedback on the process by emailing rec@kcl.ac.uk.

We wish you every success with this work.
With best wishes, Research Ethics Office
Risk Assessment Application

**RISK TYPE B**

Fill out THIS PAGE and ALL OTHER PAGES in this form.

DECLARATION: I have considered ALL categories in this form and have indicated which risks apply to me that are greater than in everyday life and normal activities (writing yes/no for every section). Where I have answered ‘yes’ then I have also indicated the degree of risk from 1–5 (1=low, 5=high) and, where appropriate, added notes or comments relating to the level of risk. I have identified and added any additional risks not explicitly covered by this form in the final section.

**SIGNATURES OF PERSON FILLING IN A RISK ASSESSMENT AND COUNTERSIGNATURE.**

**A. Person filling in this risk assessment**

Signature (TYPE YOUR NAME AND STAFF OR STUDENT ID IN PLACE OF A SIGNATURE):
Maximilian Genta 1446388

Date: 9 July 2015

**B. Countersignature and date.** I sign to indicate that I have read this and consider it an appropriate assessment.
(Students – Research Supervisor; Research Staff – Project Leader; Academic Staff – Head of Department)

Signature (TYPE YOUR NAME AND STAFF OR STUDENT ID IN PLACE OF A SIGNATURE):

Date:
Table 1. Department of Geography Research Ethics Screening Questions.

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Have you read and familiarised yourself with the professional research guidelines of The British Sociological Association?</td>
<td>☐</td>
<td>☑</td>
</tr>
<tr>
<td>2) Does your research “involve human participants” and/or “raise other ethical issues with potential social or environmental implications”?</td>
<td>☐</td>
<td>☑</td>
</tr>
</tbody>
</table>

If you answered ‘No’ to question two, you do not need to submit your research for ethical review. If you answered ‘Yes’ to question two, please use the flowchart on [http://www.kcl.ac.uk/innovation/research/support/ethics/about/index.aspx](http://www.kcl.ac.uk/innovation/research/support/ethics/about/index.aspx) to establish your risk level and where you need to apply (see Table 2).

Table 2. Three levels of risk for project types, and how to obtain College Research Ethics clearance.

<table>
<thead>
<tr>
<th>Project type</th>
<th>How to submit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low risk</td>
<td>Can be reviewed using an on-line process. The process includes guidelines and prompts to help ensure your project is low-risk: <a href="http://www.kcl.ac.uk/innovation/research/support/ethics/applications/lowrisk/index.aspx">http://www.kcl.ac.uk/innovation/research/support/ethics/applications/lowrisk/index.aspx</a></td>
</tr>
<tr>
<td>Moderate risk</td>
<td>Should be submitted to the Geography, Gerontology and Social Care Workforce Research Unit Panel (GGS REP): <a href="http://www.kcl.ac.uk/innovation/research/support/ethics/applications/apply.aspx">http://www.kcl.ac.uk/innovation/research/support/ethics/applications/apply.aspx</a></td>
</tr>
<tr>
<td>Uncertain risk</td>
<td>Should be submitted to the Social Sciences, Humanities and Law Research Ethics Sub-Committee (SSHL RESC): <a href="http://www.kcl.ac.uk/innovation/research/support/ethics/applications/apply.aspx">http://www.kcl.ac.uk/innovation/research/support/ethics/applications/apply.aspx</a></td>
</tr>
<tr>
<td>High risk</td>
<td>Should be submitted to the Social Sciences, Humanities and Law Research Ethics Sub-Committee (SSHL RESC): <a href="http://www.kcl.ac.uk/innovation/research/support/ethics/applications/apply.aspx">http://www.kcl.ac.uk/innovation/research/support/ethics/applications/apply.aspx</a></td>
</tr>
</tbody>
</table>

In all cases, even if ‘no’ risk, you MUST sign and return this Geography Research Ethics Screening Form to be kept on file with the Department Office, and if an Undergraduate or Masters student, submit a copy of this at the end (as part of Appendix 1) of your IGS or Dissertation. In cases where there is low, moderate or high ethics risk, you MUST complete the College Research Ethics Application at least one month before you intend to start your research and obtain written approval from them BEFORE carrying out any research.

Carrying out research without ethical approval by the College Ethics Committee may result in a charge under misconduct regulations as “action that deviates from accepted institutional, professional, academic or ethical standards will be regarded as misconduct and an infringement of these regulations” “Academic regulations, Regulations concerning students & General regulations” B3 – 1.1, King’s College London. You should note that your research will not be covered by the College’s insurance until you have completed the College ethical review process. This means that unless you receive ethical approval for your research, if a participant makes a legal claim regarding the research, then you would be personally liable. It is your responsibility to submit your research for College Ethical Review in good time to carry out any research.

Provisional IGS/dissertation title:

Student Name: Maximilian Genta, Student Card No: 1446388

Student Signature: [Signature]

Supervisor Name: [Name]

Supervisor Signature: [Signature]

Date: 1.4.15

Last updated 6 March 2013
Rothstein, Henry
Fri 7/10/2015 8:56 AM

To: Silk, Katharine;
Cc: Genta, Maximilian;

- You forwarded this message on 7/28/2015 8:09 PM

Dear Katharine

Please find attached a risk form for my student Max Genta. In my view he runs no risks that it would be reasonably practicable to ask him to reduce further.

Henry
Sent from Samsung Mobile

Silk, Katharine
Wed 7/29/2015 9:02 AM

Dear Max, Dear Henry,

This risk assessment was indeed received, and sent to Dr Trevor Blackall for review. As he is now on leave I have looked at the at the risk assessment and am happy to confirm approval.

With best wishes,
Katharine
## Appendix B: Interview Participant Codes

<table>
<thead>
<tr>
<th>Interview Number</th>
<th>Interviewee position</th>
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<tbody>
<tr>
<td>1</td>
<td>Union representative</td>
<td>UNOK1</td>
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<tr>
<td>2</td>
<td>Former OSHA official</td>
<td>HS-RD</td>
</tr>
<tr>
<td>3</td>
<td>OSHA inspector</td>
<td>OSH1</td>
</tr>
<tr>
<td>4</td>
<td>Former OSHA inspector</td>
<td>HSI1</td>
</tr>
<tr>
<td>5</td>
<td>Workers’ compensation lawyer</td>
<td>LW1</td>
</tr>
<tr>
<td>6</td>
<td>OSHCON consultant</td>
<td>OSHCON1</td>
</tr>
<tr>
<td>7</td>
<td>Safety engineer (petroleum)</td>
<td>ASSoSoSEP</td>
</tr>
<tr>
<td>8</td>
<td>Loss control specialist at major insurance company</td>
<td>LC1</td>
</tr>
<tr>
<td>9</td>
<td>Director of loss control at major insurance company</td>
<td>LC2</td>
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<td>10</td>
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<td>12</td>
<td>Government safety inspector</td>
<td>SI1</td>
</tr>
<tr>
<td>13</td>
<td>Claims adjuster for mid-sized insurance company</td>
<td>CA1</td>
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<td>15</td>
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<tr>
<td>23</td>
<td>OSHA trainer</td>
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## Appendix C: Employers

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Maximilian Genta (1446388)


Hamby, Chris (2012) Even after workplace deaths, companies avoid OSHA penalties. Center for Public Integrity. Web: www.publicintegrity.org/2012/12/21/11945/even-after-workplace-deaths-companies-avoid-oshapenalties


Oklahoma Senate. Enrolled Senate Bill No. 1062


OSHA (2013) Remarks by Dr. David Michaels Assistant Secretary of Labor for Occupational Safety and Health Press Teleconference on Proposed New Rule to Improve Tracking of Workplace Injuries and Illnesses 1 p.m. EST Thursday, Nov. 7, 2013.


Maximilian Genta (1446388)


Workers' Defense Project (2013) *Build a Better Texas*.

