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Protecting workers through supply chains: lessons from two construction case studies

Abstract

Two case studies of the successful use of supply chains to support the effective management of health and safety on construction sites are analysed to identify the factors supporting this success. The analysis reveals that a combination of external regulatory pressures and an industry structure facilitative of the establishment and implementation of ‘good practice’ played a crucial role in the outcomes achieved. It is concluded therefore that while the findings lend weight to policy initiatives to utilise the power dynamics in supply chains to protect working conditions, they also suggest that surrounding institutional and industrial contexts exert a potentially crucial influence over their effectiveness. Consequently, it is further argued that such initiatives need to be *responsively* shaped to them.

Introduction

The way in which employment restructuring over the last three decades has led to increasing numbers of workers within developed economies being located in work situations embodying various forms of vulnerability has been widely acknowledged. This acknowledgement has in turn prompted much debate as to the actions that can be taken to challenge such vulnerability and more generally protect employment conditions in an environment in which they are increasingly coming under threat through a combination of market forces and inadequate countervailing frameworks of protection (see e.g. Standing, 2011 in general terms and Quinlan and Bohle, 2008, more specifically in relation to protection from work related harm).

One approach advocated to affording such protection has been to encourage powerful actors to utilise the power and influence they wield over the often multi-tiered networks of purchasers and suppliers that make up the supply chains which contribute to the provision of their own goods and services to ensure that the provision of certain minimum employment conditions within them (Johnstone et al, 2001; Weil, 2009). This approach has been advocated despite the fact that these same actors often have precisely the opposite effect as a result of the cost and delivery pressures they impose on their suppliers and hence the way in which they contribute to the driving down of terms and conditions in such organisations (Cunningham et al, 2013; Wright and Lund, 2003; James and Lloyd, 2008; Walters and James, 2011; Rubery et al, 2003).

To date, such a strategy has most commonly been pursued through the promulgation and adoption of voluntary codes in respect of global supply chains as a result of the campaigning of NGOs, trade unions (particularly global union federations) and other pressure groups (Vogel, 2008; O’Rourke, 2003; Braithwaite and Drahos, 2000; 2000; Rodriguez – Garavito, 2005). Regulatory initiatives have, however, at times been pursued by individual countries focussed on the supply chains operating within particular sectors. For example, this is true of the apparel industry in Australia and the United States and of long distance trucking in the

former (Weil and Mallo, 2007; Nossar et al, 2004; James et al, 2007). In addition, at the level of the European Union a directive, transposed into United Kingdom law through the Construction (Design and Management) Regulations 2007, lays down minimum requirements in respect of the management of construction projects that have a strong supply chain emphasis (Griffiths and Phillips, 2001).

Detailed analyses of whether, and under what circumstances, supply chain initiatives positively impact on employment conditions within supplier organisations located *within* advanced economies, however, remain rare (Weil and Mallo, 2007). Even rarer are studies that examine the role that regulatory inspection strategies, and other known drivers of the development of arrangements for occupational health and safety (OHS) management play in influencing their nature and impact (see Walters et al 2011).

This lack of evidence means that the relevance to such initiatives of a number of key debates and propositions to be found in new governance discourses and the global value chain literature centred how to most appropriately regulate employers remain empirically unclear. In particular, the relevance of two important, and somewhat over-lapping, issues emerging from these literatures have not been adequately explored. The first of these concerns the issue of whether, and how far, initiatives of this type can be effective in the absence of supportive external, public, forms of governance and hence the existence of market contexts that encourage, or at least facilitate, them (see e.g. Locke et al, 2013; Marchington and Vincent, 2004). The second, meanwhile, relates to the question of whether the growing reliance on forms of state regulation that place an emphasis on utilising voluntaristic, persuasive strategies to improve corporate behaviour provide an effective source of support to such attempts to influence inter-organisation, market-based relationships (see e.g. Ayres and Braithwaite, 1992; Gunningham and Johnstone, 1999; Tombs and Whyte, 2013)¹.

The present paper consequently seeks, via the provision of two detailed case studies of the successful proactive management of health and safety on major construction sites, to shed new light on both of these issues. One of these studies focuses attention on a project undertaken as part of the development of the Olympic Park and therefore in a context marked by a public commitment on the part of the client - the Olympic Development Authority – to ensure that construction activities were conducted in a way that resulted in excellent standards of health and safety performance. The other involves another construction venture in which the same principal contractor was engaged in another large, but somewhat lower profile, project in which the client/procurer took a more ‘hands off’ approach to the oversight of health and safety standards.

Each of these studies afforded an opportunity to qualitatively explore the factors that contributed to the effective management of safety within an industry in which sub-contracting is ubiquitous, accident rates are high and safety performance is seen to be intimately connected to the management challenges and problems associated with widespread and often very complex contracting arrangements (Mayhew and Quinlan, 1997; Dawson et al, 1988; Donaghy, 2009; Rebitzer, 1995). Furthermore, by focussing on projects involving the same principal contractor, as well as a range of second and third tier sub-contractors, and thereby

‘holding constant’ internal corporate policies and strategies, they provide a sensitive platform from which to empirically explore how their safety performance was influenced by the interactions between regulatory, market, and client/project contexts, on the one hand, and internal corporate ones, on the other.

What follows commences with a consideration of the importance of supply chain dynamics to safety management in the construction industry. Following this exploration, the background to, and the methodology for, the two case studies are outlined, and their main findings reported. Finally, the implications of these findings for existing debates identified above concerning the relationships between private and public forms of regulation, and how the behaviour of corporations can most effectively be regulated are discussed in the context of what they tell us more generally about the potential value of initiatives to use supply chains to improve labour standards.ⁱⁱ

The relevance of supply chains to construction safety

In 2009 the Health and Safety Executive (HSE) gave the following description of the nature of construction activity and the context within which it is undertaken:

Projects and sites are ephemeral in nature, constantly changing in status, covering a huge range of construction processes of varying complexity and scale. The work processes and people change almost daily on sites. Projects involve those who procure, design, specify, manage and maintain buildings and structures as well as those who undertake the process of building them – the supply chain. ‘Construction’ ranges from large, high profile projects such as Heathrow Terminal 5 and the Glasgow Commonwealth Games facilities carried out by major principal contractors for large, competent clients, to small refurbishment projects of shops and domestic roof repairs undertaken by a self-employed contractor. (HSE, 2009)

From this description, it can be seen that sub-contracting, and the supply chains within which it is embodied, are central to British construction work. This sub-contracting operates through a ‘top-down’ structure, with principal contractors outsourcing very significant proportions of projects to one or more tiers of sub-contractors. It also operates against the backcloth of employment which is often short-term and informal and a labour market that is (increasingly) characterised by various forms of contingent employment, including agency working and both bogus and genuine self-employment (Forde et al, 2009; McKensie et al, 2010; UCATT, 2008). Unionisation in the industry is comparatively low and falling. In 2011 membership density was 14.8%, less than half of what it had been in 1985, while collective bargaining coverage stood at 18% (Brownlie, 2012: Table 3.6). Both membership and collective bargaining are most commonly found in larger firms.

More generally, the sector is dominated numerically by small and micro enterprises: approximately 92% are micro firms employing less than 10 workers, and most of the rest employ between 10 and 49 workers (HSE, 2009). Nevertheless, despite these figures, around 20% of employment is in the 0.1% of firms employing more than 250 workers (McKensie et

al, 2010), and approximately a quarter of the industry's output is generated by fewer than 125 large companies, each of which employ 600 or more people (HSE, 2009). It is these very large operators who are engaged in high profile, and often public sector funded, building projects that operationally dominate much of the outsourcing which occurs in the industry (Donaghy, 2009).

Safety performance in the construction industry, in terms of both overall numbers and rates of injuries and fatalities, has improved significantly over recent decades; the rate of fatal injuries declined significantly during the 1990's and early 2000's, before levelling off from about the mid 2000's (HSE, 2009). However, it is still a high risk industry, accounting for over one in four (27%) fatal injuries, nearly one in ten (9%) reported major injuries and 6% of over 3-day injuries among employees (HSE, 2011). It is also apparent that the recent improvement in safety performance has not been spread evenly across the industry, having been noticeably less marked on small sites and among small employers (HSE, 2010). Indeed, figures for the five years between 2003/2004 and 2007/2008 show that two-thirds of fatalities were among the self-employed or those working for firms employing 15 or fewer workers and similarly that two-thirds of accidents occurred on small sites (with 15 or fewer workers), making it very clear that those working for smaller firms in the industry are at greater risk (HSE, 2009).

The contrast between the safety performance of larger and smaller companies in the industry, as well as the role of the former in providing work to the latter, logically serves to highlight the potential role that supply chain management could play in improving the industry's safety performance. This logic is moreover reinforced by a substantial body of evidence highlighting how the subcontracting prevalent in the industry does make an important contribution to the occurrence of accidents, including fatalities, within it.

Subcontracting has been found to produce uncertainty amongst workers and their managers about the division of responsibilities for health and safety and to lead to subcontractor (and agency) workers being substantially less well informed on health and safety matters than those of the principal contractor on the same construction sites (Dawson et al 1988; Walters and Nichols, 2007; Kochan et al, 1994; Rebitzer, 1995). Self-employed construction workers have also been found to face greater risks of harm. This is not because the hazards they experience are intrinsically different from those faced by employed workers; rather, 'it is because the self-employed work longer hours, more intensively, in more hazardous sub-sections of the industry under greater economic duress' (Mayhew and Quinlan, 1997: 202). More widely, these same authors have argued that 'the most fundamental cause of diminished OHS performance is the fierce level of competition for building contracts' and more generally observed that '*Four key factors link outsourcing with poorer OHS, namely economic/reward pressures, disorganisation, diminished regulation and the inability of outsourced labour to organise*' (Mayhew and Quinlan, 1997: 202).

The same conclusions have essentially been advanced by numerous government-commissioned inquiries into the performance of the industry, in trade union publications, and in the recommendations of parliamentary select committees and other independent reviews (Latham, 1994; Egan, 1998; National Audit Office, 2001; House of Commons Work and Pensions Committee, 2008; UCATT, 2008, Clarke, 2006). For example, Donaghy (2009) and her colleagues in a government commissioned report on fatalities concluded that fragmentation in the industry, together with issues relating to such matters as training and

skills, pre-qualification processes, and the extent of self-employment, were key factors underlying their occurrence.

For much the same reasons, regulatory inspection of work on construction sites is acknowledged by the HSE to be challenging. Its 10 year Construction Priority Programme is designed to improve its impact in the industry and ensure that risks are properly controlled through engaging with 'stakeholders' (HSE 2009). A key aim of this programme is to encourage communication, cooperation and co-ordination throughout the supply chain in order to identify and eliminate (or effectively manage) risk. The HSE has made clear that in pursuit of this aim it will spend more time regulating smaller sites while, for large contractors, carrying out fewer site visits and putting more emphasis on "...*challenging large contractors at Board level.*" (HSE 2010).

These strategies are pursued within a wider response of the regulatory inspection to the changing structure and organisation of work, in which much has been made of improving 'stakeholder engagement' and alternative approaches to achieving 'buy-in' from duty holders. Generally this response has led to an increased emphasis on exploring means other than conventional inspection to reach 'the hard to reach' with ways to assist the improvement of their health and safety performance. The business relations on large construction sites are an obvious means through which to do this and therefore the strategies of the regulator in relation to them were of interest in the present study.

During the last decade, the strategy of the main construction workers' trade union (the Union of Construction and Allied Technical Trades — UCATT) has also acknowledged the problems created by the fragmentation of employment on construction sites for conventional trade union approaches to representing the interests of construction workers. Its response has been to press clients and large principal contractors to develop 'framework agreements'. These agreements vary in detail but their emblematic features are measures to promote direct employment and the appointment of site convenors or senior stewards with a remit to represent the interests of workers from among the many employers on the same site. Both these features are claimed by the trade union to help enhance safety (Wright and Brown 2013).

Given the statistics detailed earlier on union membership and collective bargaining coverage, the fact remains, however, that the capacity of unions to obtain such agreements and subsequently monitor and enforce their provisions is often limited. In a similar vein, while the HSE's strategy of focussing inspections on smaller sites and relying more on board level engagement on larger ones may be viewed as a potentially cost-effective one, cuts to government funding announced in October 2010 requiring savings of at least 35 per cent over the period to 2014/15 necessarily raise concerns over how far it is in a position to implement this strategy effectively. These moreover are reinforced when it is noted that net operating costs fell by approximately 22 per cent, from £203 to £159 million, between the years 2010/11 and 2012/13, and that the number of HSE 'front line staff' declined by around 10%, from 1464 to 1322, in the period from 2010 to 2013 (HSE 2012 and 2013).

Such caveats therefore necessarily raise doubts about how far the potential value of using construction supply chains to improve health and safety standards can be realised, while also

prompting questions as to circumstances under which it can be harnessed successfully. It is consequently against this backcloth that the case studies which follow are presented.

Case study aims and methodology

The two case studies reported below were conducted as part of a wider study encompassing both the construction and maritime industries (Walters et al, 2012). The main aim of all of the case studies undertaken in the wider project was to assess the impact of the supply chain strategies of procurers on occupational health and safety management and performance among their contractors. A second, related aim, was to explore how these relationships, and the structures and dynamics of the supply chain within which they were embedded, were themselves shaped by sectoral level factors, such as the nature of market competition, surrounding regulatory arrangements, labour market conditions, leadership and management attitudes, strategies and policies and other external influences, such as public profile and reputational risk. Meanwhile, a third aim was to explore the preconditions for the transferability and sustainability of good practice in health and safety management in the sectors concerned.

The two studies undertaken in the construction industry both focused on the same contractor (an organisation we have chosen to call Titan Industries). This company was a large well-established construction engineering company and a recognised industry leader not only in terms of civil engineering but also in relation to health and safety practices and performance. At the time of the research it had a directly employed workforce of over 3,000. The company's accident frequency rate at the end of 2009 was 0.21 incidents per million hours worked. In 2010 it had eight reportable accidents, down from 30 in 2009 (and 51 in 2000); and 41 lost time injuries, down from 63 in 2009. The organisation had not experienced a fatality during the period 2006 to 2010, and also had an unbroken record of a 10% reduction in accidents year-on-year since 1999.

In the first case study we explored the company's role as one of the principal contractors on the Olympic Park. In the second we examined its role in a large inner city development and regeneration scheme, referred to in what follows as the Forum Development Project. In each, as shall be seen, attention was focussed on gathering data not only at project client and principal contractor levels but also at two further levels, or tiers, of contracting. The purpose of this approach being to go beyond the common practice of only studying the supply dynamics subsisting between 'purchasers' and their direct suppliers (Walters et al, 2012) and in this way gaining a fuller picture of whether, and under what circumstances, those towards the head of supply chains can more deeply influence behaviour within them.

Case study 1: The Olympic Park

On the Olympic Park, Titan Industries was selected as a focus for study following discussions between the research team and the Olympic Delivery Authority (ODA) Learning Legacy

Project Team. Meanwhile, the lower tier contractors studied were selected and approached by this principal contractor, again following discussions with the researchers. Titan Industries began work on the Olympic Park at the outset of the building project and so was involved in the planning and preparation for the build. At the time the interviews were conducted the organisation was focused on the infrastructure of the Park and was involved in the construction of bridges, roads, underpasses and landscaping.

As a general rule the company used sub-contractors primarily for very specialised work and would tend to carry out tasks such as landscaping with its directly employed labour. On the Park, however, it had been encouraged to contract out this work, and the participating sub-contractors in the case study were primarily involved in landscaping. This can be seen from Table 1, which details the size and core business activities of the sub-contractors involved in the study.

Table 1 Participating Organisations in the Olympic Park case study

Tier	Approximate overall number of employees	Business type
1	3000	Civil engineering
2	500	Commercial landscaping
2	100	Landscaping and engineering
2	100	Marine based civil engineering, dredging and remediation
3	100	Water features, irrigation and waste water treatment
3	200	Commercial grounds maintenance, gardening and landscaping
3	500	Civil engineering

Interviews and group discussions were carried out at the ODA London offices and on the Olympic Park itself between September 2010 and March 2011. In total 27 people took part in the case study across 21 interview or group discussion sessions: five from the head of the supply chain; nine from the Tier 1 contractor; eight from the Tier 2 level; and seven from the Tier 3 level (this including one individual employed at Tier 2 but acting as a health and safety advisor at both Tier 2 and Tier 3 levels).

Case study 2: The Forum Development Project

The Forum Development was a large infrastructure and mixed building project on a 67 acre site at an inner city location. It was being undertaken by a partnership between a developer and the owners of the land on which the building work was taking place: although it was the developer who was the active partner. Titan Industries began work at the outset of the project and at the time the interviews were conducted it was focused on the infrastructure of the site.

The research on the site was undertaken in May 2011. In addition to the principal contractor, as Table 2 details, it involved two Tier 2 sub-contractors, a labour supply agency and a multi-utility company, and a Tier 3 civil engineering firm.

Table 2 Participating Organisations in the Forum Development Case Study

Tier	Approximate overall number of employees	Business type
1	3000	Civil engineering
2	200	Labour supply for civil engineering
2	3000	Multi-utility company
3	50	Civil engineering

In total 10 people took part in the study across seven interview or group discussion sessions: one from the head of the supply chain; four from the Tier 1, principal, contractor; four from Tier 2 sub-contractors; and one from the Tier 3 engineering company.

Findings

The findings from the two case studies indicated that within each of the subcontracting supply chains safety had been managed effectively. The safety record on the Olympic Park remained significantly better than the industry average throughout the work, with the overall accident frequency rate standing at 0.17 incidents per million hours worked and hence considerably lower than that for the sector as a whole; which in 2008/09 stood at 4 per million for reportable accidents alone. Indeed, over the course of the 66 million hours worked there were 109 reportable injuries and no fatalities, with the result that the Olympic Park was the first Olympic project in the world to have been completed without a work-related fatality.

The safety record on the site of the Forum Development Project also remained significantly better than the industry average throughout the work. By December 2011, there had been no reportable accidents since the start of work in 2006, as the following quote from the project manager of the principal contractor highlights:

'We've held a good track record on this site, over the, since 2006 we've had one reportable incident and that was due to the fact that the guy had a slipped disc problem already, so in the longest sense we had to report it, but we've had a good record up to now. We are about on, just about one million work hours without injury, so it has been very good. So from a health and safety point of view we've maintained really good standards and we are quite happy with it.'

On the basis of the data collected, these positive outcomes flowed from somewhat different dynamics. However, in both cases they can be seen to have most immediately flowed from the presence of supportive attitudes and actions on the part of clients and principal contractor that existed alongside a capacity on their part to effectively operationalise them. In addition, it was also apparent that these attitudes and actions were in large part a product of several important external contextual influences. As a result, as is discussed in more detail below, the

findings suggest that in both projects the success achieved arose largely through the presence of externally generated material incentives and the way in which these were sufficient to generate appropriate and effective managerial responses from key actors, namely the principal contractors and their clients.

In what follows these conclusions are illustrated by first showing how the impressive safety performances achieved on the project were very much linked to both the presence of a strong drive within the sub-contracting supply chains to ensure the maintenance of high safety standards, and secondly, the utilisation of rigorous systems to monitor and enforce compliance with them.. Attention then moves on to showing the way in which these two features of the projects intimately reflected the influence of external environmental pressures.

The drive to manage safety

Both of the supply chains examined were marked by clear pressures to manage safety effectively that flowed from both clients and the principal contractor. The sources of these pressures, as shall be seen, differed to some extent between the two projects. In both cases, however, they were invariably supported by marked disparities in the distribution of relative dependencies between the contractor and those to whom it was subcontracting; with the result that the former generally possessed the power to secure compliance with its wishes from the latter.

Olympic Park

In the case of the Olympic Park, the ODA specified detailed pre-qualification and tendering processes intended to ensure that suppliers throughout the supply chain had the required competencies and capacities. To this end, they were expected to complete a pre-qualification questionnaire (PQQ), which asked a number of questions concerning the suppliers' policies and arrangements for OHS management. In addition, suppliers were also required to submit supporting documents detailing these arrangements and their OHS performance, as well as their own procurement and monitoring arrangements for ensuring that their contractors met OHS standards. The weight attached to the health and safety part of the PQQ was apparent:

'...they may be the greatest company, they might be potentially the cheapest but if they have got a dismal health and safety record and these are questions that we specifically ask within our PQQ documents and then if they have a report or god forbid they have had a fatality in the last year or so, I'm sorry but they don't go forward. So these are principle criteria that we start with at the beginning of our procurement process and we score those.' (Titan Industries [Tier 1] Procurement Manager)

These processes were, in turn, encompassed within a more wide-ranging Health, Safety and Environment Standard that reminded contractors of their legal responsibilities and set out how consistent good practice was to be achieved across all projects on the site. For example, it stated in relation to supply chain management that:

'Suppliers are responsible for adequately resourcing their work to meet this standard including self-monitoring, auditing and reporting against the KPIs [Key Performance

Indicators]. *Suppliers with sub-suppliers are also responsible for communicating these requirements through their supply chain and monitoring compliance.*'

The ODA also provided considerable support to help contractors achieve the required standards of behaviour. This support encompassed a range of actions to promote the creation of an effective safety culture, including the encouragement of near miss reporting; the use of safety climate and employee satisfaction measures; the running of behavioural safety management programmes; the employment of benchmarking, recognition and incentivisation schemes; and Park-wide health and safety campaigns. Lower tier interviewees invariably acknowledged that their companies' health and safety systems had been improved by this support:

'Ah, it's about a million times better, I can tell you that. Everything is more exaggerated so you've got to pay more attention, so it is better' (Tier 3 Worker)

Forum Development Project

In the Forum Development, health and safety assurance was again in evidence in the procurement procedures in the supply chain, but the client/developer did not take as prominent an interventionist role as the one actively pursued by the ODA:

'The way we manage the build out of the site is that we as a developer have a working partnership with four main contractors. So all of the work is done through those four main contractors ... they are the four main contractors we always use, whether that will change or not, I don't know but it seems to work quite well at the moment.' (Project Manager, Rome Enterprise Consortium [Procurer])

In a similar vein, while the same expectation of quality control throughout the supply chain was evident, it was clear that the site developer did not seek to directly influence procurement practices or the relationships between the Tier 1 and lower tier contractors in terms of health and safety. Rather, they expected Titan Industries to do this:

'No we don't [ask for potential suppliers' previous health and safety records], I think it is very much driven by; it is unusual that, it is almost selected through the supply chain if you like in that the principal contractor would vet all of that information before sort of suggesting them to us because we employ them to manage that process on site. ... I don't think so, no we don't tend to [seek to influence relationships between Tier 1 and lower tier contractors] because we almost feel that by doing that we might be influencing such that it is absolving some of the responsibility of the principle contractor. ... It maintains their responsibility that is the idea.' (Project Manager, Rome Enterprise Consortium [Procurer])

Notwithstanding these differences in procurer practice, a similar pattern of health and safety management prevailed on both sites. This similarity reflected the presence of the same principal contractor as well as the fact that in general contractors on both sites needed to possess comparatively well-developed health and safety management systems in order to be

approved to work on them. For example, training was provided for sub-contractors and those employed by them, and action taken more generally to bring sub-contractors into Titan Industries own systems and culture:

'So we are running Beyond Zero that has been running for about 3 years, campaign. And our supply chain would have been bought in and been made part of that. So various seminars and workshops [have been held] for them to bring them onboard and buy into our belief. ... I mean we have a proactive approach, not everybody sees the world as we do obviously, but we would like them to.' (Project Manager, Titan Industries [Tier 1])

Monitoring and enforcing compliance

The ODA had highly developed monitoring arrangements in place on the Olympic Park encompassing three main elements: the monthly completion of a HS&E scorecard by principal contractors, lead designers and construction, design and management (CDM) co-ordinators; the auditing of the health and safety performance of suppliers; and monitoring and reporting on the practical application of risk management and compliance with the HS&E Standard to the Executive Management Board.

Tier 1 contractors were expected to use their own management systems to monitor and audit health and safety performance and to investigate any accidents and incidents within their own supply chain. CLM, the ODA's Delivery Partner, then monitored Tier 1 organisations to ensure that their systems were effective. As a result, contractors at all levels were periodically inspected and audited by CLM¹⁸² to validate and verify their own self-monitoring.

The interviews conducted left no doubt that these processes of monitoring were being rigorously implemented:

'...it is very heavily policed, I get absolutely annihilated if everything isn't in the right boxes and that box isn't filled in and the hours, and the service hours and the rest of it. Everything has to be crossed and double checked, and filled in properly.' (Supervisor, [Tier 2 construction company])

'...like you walk around here without your glasses on, yellow card!' "What happens is, if you get 2 yellow cards then you are issued with a straight red and that's you off!" "Yeah and I don't know if it is true or not, but they apparently put you on a black list, so you can't come back onto the Olympic site for 5 years or something like that.' (Worker, [Tier 3 construction company])

A slightly different emphasis on monitoring was evident in the Forum Development project. Here, as already noted, the procurer's approach was generally 'hands-off'. Nevertheless, it did undertake some monitoring:

'We do collect data, we do that through, we use [organisation name] as our employer's agent for the development and we ask that they collect data from the principle contractors on any accidents and the details of any accidents that happen on site. So we

certainly want to know about anything that is reportable, and fortunately I don't think we have had very many of those, we may have had three or four in three and a half years, so that is not bad.....but also on every project, on every contract we have a monthly contract meeting and health and safety forms part of the reporting. So each month each contractor will report on their project and there is a section in there about health and safety.' (Project Manager, Client consortium Procurer]

The procurer also took part in a weekly site tour, which involved the Titan Industries site safety advisor, foreman and engineer and, on some occasions, a representative of the sub-contractors. However, generally the emphasis on the site was on the Tier 1 contractor taking responsibility for monitoring lower tier contractors' compliance with its safety systems.

Such monitoring was carried out in much the same way as on the Olympic Park and incorporated obtaining various forms of feedback, including via formal systems such as 'Beyond Zero' Boards, tool box talks, 'daily', 'method statement' and 'activity' briefings, as well as less structured ones like suggestion boxes, observation cards, a near miss card reporting system and various safety workshops. Similarly, there appeared to be no doubt that the monitoring of sub-contractor performance was far from superficial or symbolic:

'we try to follow the strict rules and you see the foreman come all the time to check if everything is safe, the general foreman [individual] comes down to have a look and he finds stuff that is unsafe he stops the job. For me he said to me once to stop the job and to do it another way. It is good because you can see the people, the general foreman they try to keep the job safe, they don't just come down and say I look I want this job done and that is it, they say no I want this job done but they try to do it in a safer way. And they are continuously watching you as well, like if you do anything wrong, they are continuously checking your work if it is alright.' (Worker, Tier 2 contractor)

Interestingly, there was very little mention of interventions by regulatory inspectors in any of the interviews with contractor personnel in either of the two case studies. It therefore seemed that the HSE inspection strategy outlined previously was pursued in both cases and that the preventive activities of inspectors were consequently focused primarily on engaging with the principal procurers (that is, with the client and the principal contractor) and exerting influence at senior levels in these organisations, while leaving them to undertake the surveillance and monitoring of lower tier contractors.

Corroboration of this observation in the case of the Olympic Park is found in reports of other studies of the management of health and safety in its construction. For example Bolt et al (2012: 30-33) describe in some detail the strategy and practice of the HSE in Board level dealings with the senior management of the ODA and those of the principal contractors. In particular, they give examples of the way in which the regulator used the occurrence of incidents, such as accidents, to draw attention to management system failures and the need for action at the highest levels among the client and principal contractors. They conclude:

'Whereas for major construction projects in the past, like the Channel Tunnel, HSE deployed a team of resident Inspectors, regulation of the London 2012 build has taken

less resource but involved strategic engagement. The characteristics directly echo those the industry teams link to success, namely clarity of purpose and expectation, effective relationships, respect, collaboration, communication, a challenge to do better, transparency, fairness and consistency, trust and empowerment, and a framework of monitoring and assurance. There was alignment between HSE and ODA on the role of leadership and demonstrable success where timely HSE engagement at a high level led to project decisions and effective action cascaded through the supply chain' (Bolt et al 2012:33)

Motivations to manage supply chain safety

The motives underlying the creation of the above management systems and processes, as well as their effective operation, were found to be informed by the complex interaction of narrow commercial considerations and broader environmental factors that in carrying reputational and financial risks acted to shape the way in which these were perceived and conceptualised.

In the case of the procurers, there seemed no doubt that the size and hence profile of the projects contributed to their concerns with regard to the management of safety, with this being particularly so in the case of the Olympic Park, as the following quote suggests:

'I guess it comes down to the type of client you are [working] for and the nature and profile of the job. This is the highest profile job in the country, if not Europe, at the moment, so all eyes are going to be on how the client, as in [Tier 1 organisation], performs and that, sort of, snowballs down through the Tier 2s and Tier 3s and how they perform (Manager [link Tier 1 to Tier 3], Tier 2 construction company)

It was further clear that both the principal contractor and its sub-contractors viewed the possession of a good safety reputation as being commercially important. In the case of the former, for example, interviewees on both sites highlighted how an excellent safety record aided the winning of further work:

'Yeah, I mean I think it is our performance on the Olympic Park, and definitely our health and safety performance which has helped us on other major jobs in the last 2 years' (Supervisor, Titan Industries [Tier 1])

'....health and safety is fundamentally the winner of all contracts these days, people say cost but at the end of the day if you have a bad track record anyway you are going to cost more, you are going to cost the client, you're going to cost your reputation, you are going to cost health and safety, sustainability and environment — it is one of the key drivers for winning work these days in any prequel or any tender' (Project Manager, Titan Industries [Tier 1])

Meanwhile, a similar picture emerged from those interviewed in Tier 2 and 3 organisations, as demonstrated by the following observations made by one manager with regard to the importance of maintaining a good health and safety record:

'It is comparative, it is included in our own bids basically and that is [company's name] pride. We promise to beat their bid, so there is a health and safety course that goes into it, so basically it is included in the price. I mean you have to show your qualifications and your processes.' (Project Manager, Tier 2 construction company)

Yet at the same time the principal contractor, unsurprisingly given its size and expertise, was not just a passive recipient of downward client pressures. For example, in the case of the Olympic Park there was evidence that many of the principal contractors on the site were already using similar management standards as part of their own procedures prior to the intervention of the ODA. Titan Industries, for example, had been involved in the development of the site from its outset and company personnel responsible for its health and safety arrangements believed that many of their systems and procedures had been used as a basis for the ones developed and rolled out across the Park by the ODA.

This seemed even more the case in the Forum Development project given that here much of the role of the project developer, as the procurer of good practices on OHS, was devolved to principal contractors such as Titan Industries. A point highlighted by one interviewee in the following terms:

'I like to think the client learns things off us, that is why they employ us in the first place isn't it. ... if you haven't got through health and safety record then you don't get through the door, it is as simple as that these days. You see it reflects on clients as much as anybody, it is their job at the end of the day.' (General Foreman, Titan Industries [Tier 1])

It was yet further clear that this influence of market-based reputational considerations had not simply emerged spontaneously from the dynamics of pure market exchanges. Rather, they were intimately connected to surrounding regulatory requirements, as well as the way in which the structure of the market within which large contractors operated enabled the HSE as a regulator to exert influence more directly over market behaviour. In broad terms, for example, the safety management arrangements echoed (but extended) the requirements of the Construction (Design and Management) Regulations 2007 that, as alluded to earlier, provide clients and principal contractors with legally based encouragement to influence the health and safety management of their suppliers. Meanwhile, the HSE was, as also noted earlier, actively seeking to improve the health and safety performance of the construction industry by focussing attention on influencing the behaviour of large clients and contractors at the top of construction supply chains. Consequently, in both the projects studied it had largely exerted its influence through engagement with client and principal contractor senior management, with the intention that it would then be cascaded through the various levels of procurement by the demands of the procurers involved. However, this influence was itself exercised against the backcloth of a wider process of market shaping on the HSE's part that was focussed strongly on the collective shaping of major contractor perceptions and strategies.

The principal contractor - Titan Industries - belonged to the UK Contractors Group (UKCG). This group had during the previous decade been active in co-operating with the HSE in the delivery of its campaigns aimed at improving the industry's health and safety standards, as well as more generally promoting the business case for health and safety in the industry. In fact, the strategy of the HSE's Construction Division has been to work closely with this organisation and its members to try to effect change at the highest level in the companies concerned, on the basis that this would lead to such change being cascaded downwards through the relationships existing between upstream and downstream contractors.

This strategy, from the findings obtained, had met with some success in shaping the expectations and behaviour of clients and contractors about how safety should be managed on large construction projects. It would also seem reasonable to argue, albeit somewhat more speculatively, that this outcome had been aided by the oligopolistic nature of the major contractor market place, as well as the presence within it of an industry body that was comprehensively representative of such organisations, and the ability of them to exploit their market power to influence the behaviour of those to whom they sub-contracted.

Discussion

At the most straightforward level, the reported case study findings lend weight, in common with other examples, internationally, of the effective management of safety on large-scale construction projects (Deakin and Koukiadaki, 2009; Ewing, 2006; European Agency for Safety and Health at Work, 2000), to policy initiatives seeking to harness the power dynamics within supply chains to protect and improve the working conditions of those working for supplier organisations. They also, in doing so, lend support to the view that such initiatives depend crucially not only on the commitment of key purchasing organisations but also on them more specifically taking action to adequately monitor and enforce the employment standards that they promulgate (Locke et al, 2007; Gibbons, 1998). Beyond this, however, the findings provide a rather complex picture of the dynamics which informed both a desire in each case to obtain high standards of safety performance and a willingness to take appropriate actions to support its achievement.

In the case of the principal contractor, the willingness to influence and monitor the way in which its sub-contractors managed safety appeared to be very much connected to a belief that a good reputation in the area was important to the obtaining of new contracts; a commercial incentive that cascaded downwards to create similar motivations on the part of the company's (smaller) sub-contractors as a result of the marked power it possessed over them. This commercial incentive on the part of the principal contractor was most notably evidenced by the importance that both of the clients, most notably the ODA, attached to the effective management of safety. At the same time, taken as a whole, the findings pointed to the fact that this 'drive for safety' did not flow narrowly from market-based business considerations. Rather, they reflected the way in which the market within which both the contractors and

clients were operating had itself been shaped by wider social and political pressures and the policy responses these had prompted.

In the face of long-standing criticisms of the construction industry's safety performance, HSE and the major companies in the industry had developed a common understanding of what constituted 'good practice' in the management of construction projects, including in respect of how sub-contractors were managed. This 'good practice', the findings suggest, had acted to structure market, regulatory and organisational expectations regarding the competencies that tendering companies are expected to demonstrate and how, more generally, they are managed. Indeed, these expectations had in effect become embedded in the way that the forces of supply and demand in the industry operated in respect of major building projects, and in this way reshaped those that had previously operated. Meanwhile, in line with this joint 'good practice' authorship, the HSE was found to have focussed its energies not on inspecting and enforcing desired behaviour 'on the ground' but in reinforcing this approved practice among senior client and contractor management through 'persuasive engagement' with them. This approach, moreover, appeared to have met in both cases with some success, particularly in the case of the Olympic Park, where the client, against the background of this project's greater size and public profile, was found to have engaged much more proactively and directly in the development and overseeing of safety management arrangements.

The findings obtained therefore echo other analyses pointing to the way in which supply chain relationships are crucially influenced by the nature of surrounding institutional environment (Gereffi et al, 2005; Marchington and Vincent, 2004; Weil, 2009) by indicating that positive supply chain effects are most likely to occur in contexts where regulatory and wider social pressures act to create supporting market contexts. That is in institutional contexts where market, and related inter-organisational, logics are importantly shaped by supplemental regulatory and reputational risks which together create a supportive 'organisational field' (DiMaggio and Powell, 1983).

In the context of the case studies reported here, the effectiveness of these supplemental influences in part stemmed from the presence of a relevant regulatory agency in the form of the HSE operating against the backcloth of long-standing political concerns about standards of safety in the sector, as exhibited in numerous official inquiries and reports, and the presence of regulatory requirements placing well-defined duties on the heads of supply chains, as well as on the contracted and sub-contracted actors more proximal to day-to-day health and safety management. However, a further crucial factor appeared to have been that the construction industry is made up of a relatively small number of large contractors who represent an important source of work in an industry dominated numerically by small and medium sized firms. As a result, it has a structure through which regulatory pressures can be exerted on a relatively small number of companies towards the head of supply chains to develop and meaningfully adopt supply chain standards and processes that come to be seen to constitute 'standard practice' by large construction project clients. It also, as a consequence, has one that facilitates the effective implementation of such 'practice' because of the dependency relationships that exist between these major contractors and the companies to whom they sub-contract.

Returning, then, to the two questions identified at the outset as forming the effective point of departure for this paper, the findings obtained do not provide support for the view that private forms of supply chain governance focussed on protecting and enhancing labour standards will emerge as a result of market-based forces of supply and demand. They do, however, lend strong support to the argument that institutional, and particularly regulatory pressures, can at times be successfully used to re-shape such forces in a way that is conducive to such governance: a point reinforced perhaps by the commitment that the principal contractor continued to exhibit towards the management of safety in the second case study notwithstanding the more hands off approach to the issue adopted by the client concerned (and possibly also by the regulator). As a result, the findings can be seen to align with the conclusions of recent studies focussed on the adoption corporate social responsibility policies (Gjolberg, 2009), the facilitators of self-regulatory corporate behaviour (Short and Toffel, 2010), and the limits of forms of private governance (Mayer and Gereffi, 2010), and to hence more widely support the view that it is possible to influence corporate supply chain behaviour via the creation of mutually supportive systems of public and private regulation (Locke et al, 2013).

Also at a positive level, the two case studies have shown that regulators can successfully utilise persuasive approaches to engender appropriate behaviour on the part of regulated organisations. The endorsement so provided must, however, be viewed as a qualified one. In part, this is because the regulator concerned, the HSE, utilised such an approach in an environment marked by the existence of specific legal requirements relating to the management of construction supply chains that it was empowered to enforce. Consequently, its ‘persuasion’ was exercised against the backdrop of the possession of a ‘deterrence’ threat comprising an ability to issue enforcement notices and initiate criminal prosecutions (Tombs and Whyte, 2013). This qualification consequently serves to raise questions about how far such approaches can be successfully utilised in market contexts that are less dominated by a small group of large and reputationally vulnerable companies.

Taken together the study’s findings do therefore suggest that it is possible to develop regulatory supply chain regimes that serve to engender positive processes of self-reflection and reform on the part of key actors (Teubener, 1993; Rogowski and Wilthagen, 1994). They also, however, lend weight to the view that the design of such regimes needs, in line with the tenants of responsive regulation theory, to pay due regard to prevailing industry and institutional contexts and the attitudes and behaviours associated with them (Ayes and Braithwaite, 1992; Baldwin and Black, 2007).

Conclusion

Against the backdrop of a policy interest in harnessing the inter-organisation dynamics embodied in supply chains to protect and enhance employment conditions within supplier organisations, this article has examined those acting to support the successful management of safety on two major construction projects. In both cases these dynamics were found to have been shaped by an inter-play between market and institutional forces. More specifically, the findings highlighted how a combination of external regulatory pressures and an industry

structure facilitative of the establishment and meaningful implementation of notions of ‘good practice’ played a crucial role in the successful outcomes achieved.

The reported findings therefore lend weight to attempts at the domestic national and global levels to counter the tendency for supply chain pressures to undermine working conditions. They also, however, add support to the view that such attempts need to go beyond mere exhortation and to incorporate external institutional pressures which give rise to financial and reputational risks sufficient to meaningfully adjust business logics that run counter to the policy objectives they are intended to achieve.

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Notes

ⁱ Such strategies, as the quoted references highlight, in their rather differing ways, are frequently compared favourably to 'command and control' ones on the grounds that they are able to overcome a number of conceptual and operation problems that are seen to be associated with the latter. In reality, however, as Tombs and Whyte (2013) point out, they also embody a reliance on 'deterrence'. Consequently, the two types of strategy are best viewed as forming part of a regulatory continuum rather than mutually exclusive categories.