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Article

Varieties of risk regulation in Europe: coordination, complementarity and occupational safety in capitalist welfare states

Henry Rothstein^{1,*}, David Demeritt¹, Regine Paul²,
Anne-Laure Beaussier¹, Mara Wesseling³, Michael Howard¹,
Maarten de Haan⁴, Olivier Borraz³, Michael Huber²,
Frederic Boudier⁴

¹Department of Geography, King's College London, Strand, London, WC2R 2LS, UK, ²Law & Society Unit, Department of Sociology, Bielefeld University, D-33501, Bielefeld, Germany, ³Centre de Sociologie des Organisations (CSO), Sciences Po-CNRS, 19 rue Amélie, 75007 Paris, France, and ⁴Department of Technology and Society Studies, University of Maastricht, Grote Gracht 90-92, 6211 SZ Maastricht, The Netherlands

*Correspondence: henry.rothstein@kcl.ac.uk

Abstract

This article tests the extent to which the organization and stringency of occupational health and safety regulation complements the dominant mode of coordination in the political economy. While the UK explicitly sanctions risk-cost-benefit trade-offs, other European countries mandate ambitious safety goals. That contrast appears to reflect cleavages identified in the Varieties of Capitalism literature, which suggests worker protection regimes are stronger in coordinated market economies than in liberal market economies. Our analysis of Germany, France, UK and the Netherlands, shows that the varied *organization* of their regulatory regimes is explained through a three-way complementarity with their welfare systems and modes of coordination. However, despite varied headline goals, we find no systematic differences in the *stringency* of those countries' regulatory protections insofar as they all make trade-offs on safety. Instead, the explicitness, rationalizations and logics of trade-offs vary according to each country's legal system, state tradition and coupling between regulation and welfare system.

Key words: risk, regulation, labor law, capitalism, varieties of, Europe, welfare state.

JEL classification: I38, J88, K32

1. Introduction

In 2007, the UK won a protracted battle with the European Commission (EC) over its explicit framing of occupational health and safety (OHS) regulation as a trade-off between safety and cost (C-127/05, *Commission v. UK* [2007] ECR I-4619). The EC had referred the UK to the European Court of Justice (ECJ), alleging that UK law compromised the goal of European OHS regulation by stipulating that workers should only be protected against harm ‘so far as is reasonably practicable’. The EC—and, indeed, European trade unions—argued that this qualification was inconsistent with the Framework Directive’s (89/391/EEC) absolute duty on employers to ‘ensure the safety and health of workers in every aspect related to the work’. Other European Union (EU) Member States had transposed the Directive without qualifying its goal, and so should the UK. The UK successfully countered, however, that since it is ‘impossible to eliminate all [workplace] risks’ (HSE, 1989, p.17), it is better to ensure that the cost, time and effort required to reduce risk is not grossly disproportionate to the benefit gained.

At first sight, this conflict over regulatory trade-offs between cost and safety is consistent with an important theme of the Varieties of Capitalism (VoC) literature, some of which suggests that liberal market economies (LMEs)—typified by the UK—offer weaker welfare and labour market protections to workers than the coordinated market economies (CMEs) of continental Europe. VoC scholars often explain contrasts in welfare protection policies as arising from differences in economic competitiveness strategies, which welfare systems reciprocally complement and enhance. They argue that because CMEs invest more in developing firm- and industry-specific skills than LMEs, there are therefore greater incentives for firms and workers in CMEs to protect those investments on which their competitiveness depends, than in LMEs where competitiveness depends on labour market flexibility rather than on sustaining long-term employer–employee relationships (e.g. Estevez-Abe *et al.*, 2001; Hall and Gingerich, 2009; Hay and Wincott, 2012).

Most discussion of worker protection in the VoC literature has focussed on how welfare and labour market protections vary with and institutionally complement the distinctive organizational logics underpinning different political economies. It would not seem unreasonable, however, to expect the organization and stringency of OHS regulation to follow similar patterns, since keeping workers safe and healthy is an important part of the cost-structure for businesses. For example, at the time of writing, there is a furious debate about whether the UK’s exit from the regulatory constraints of the EU will herald the erosion of a host of worker protections to enhance the nation’s competitiveness. From that perspective, the stark difference between the Directive’s goal of ensuring safety and the UK’s risk-based goal of qualified—‘so far as is reasonably practicable’—protection is consistent with the accusations of critics of Anglo-Saxon neo-liberalism, who decry the turn to risk-based regulatory rationales as assaults on public and worker protection (Dodds, 2006).

At the same time, such claims highlight a puzzle. Improving workplace safety inevitably carries costs, and so trade-offs about how much additional safety and at what price are inevitable, since it is impossible to ‘ensure’ complete safety as the Directive demands—whether from collapsing mine shafts or repetitive strain injuries from typing—without terminating the activity entirely. So how is it possible for EU Member States to implement the Directive without simply ignoring its mandate to keep workers safe? That puzzle is even harder to understand given that Eurostat data has long suggested that, far from having their safety

compromised by risk-based regulation, UK workers have long enjoyed some of the lowest rates of occupational injury in the EU. Indeed, rates of fatal injury in the UK—the most reliable of such statistics—have been consistently lower than in Germany and France where the legal requirement for safety is unqualified (see Figure 1).

Given that puzzle, this article examines the extent to which the organization and stringency of OHS regulation vary according to the dominant mode of coordination in the political economy, using the cases of the UK, Netherlands, Germany and France. In the next section, we discuss why the conflict over the adoption of risk-based OHS regulation provides a critical case for testing whether VoC can help explain regulatory variety across capitalist welfare states. After justifying our methodological approach in Section 3, Section 4 outlines our findings that while the organization of OHS regulation in each country broadly varies in ways that support different VoC, there is no evidence for any systematic differences in the stringency of OHS regulation. All our case-study countries accommodate cost-benefit trade-offs, albeit in strikingly different ways. In Section 5, we discuss how and why the organization, but not the stringency, of OHS regulation forms an institutional complementarity to each country's mode of coordination; attributing the different ways in which trade-offs are made across our countries to differences in legal systems, state traditions and coupling between regulation and welfare regimes. We draw more general conclusions in Section 6.

2. Risk-based Regulation and VoC

The UK's success at the ECJ reaffirmed its commitment to what has become known as 'risk-based' regulation. First applied to OHS regulation in the 1970s, the UK has over the last decade or so championed risk-based regulation as a universal approach to 'better regulation' across policy domains, from the environment and food to healthcare and higher education (Rothstein *et al.*, 2006, 2013). The central conceit of risk-based regulation is that trying to

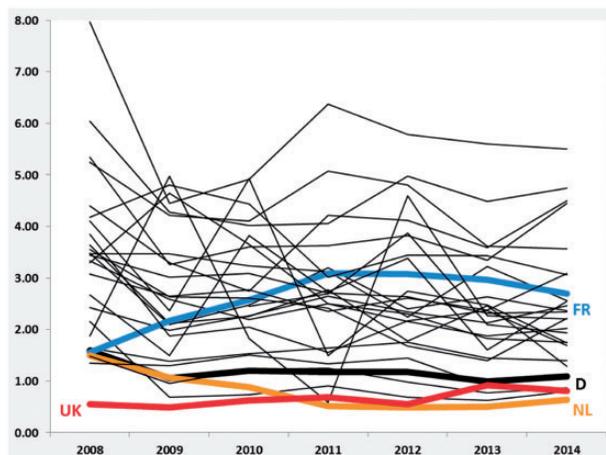


Figure 1. Fatal accidents at work per 100 000 workers in the 28 Member States of the EU, 2008–2014.

Source: Eurostat (2016).

prevent all adverse regulatory outcomes is disproportionately costly and can distract attention from more serious problems (Breyer, 1993; Graham, 2010). Instead, its proponents argue that it is more socially optimal to calibrate regulatory efforts in proportion to risk, as judged by both the probability and the consequence of harm occurring (Baldwin and Black, 2010). For example, closing entire railway lines during maintenance would eliminate the risks of collision with workers, but would be less practicable than using warning signals and posting lookouts and would not prevent other risks such as working with heavy machinery.

Promoted by a variety of national and supranational organizations, such as the US Office of Management and Budget, the World Trade Organization and the OECD (2010), risk-based regulation is now commonplace, particularly across Anglo-Saxon economies. The EU is also embracing risk-based approaches in domains as diverse as food safety, finance, and data protection. Critics of Anglo-Saxon neo-liberalism, however, have argued that risk-based regulation weakens regulatory protections by individualizing the downside risks of organizational failure onto victims rather than risk creators (e.g. Gray, 2009). Several OHS commentators have likewise argued that risk rhetoric serves as a cover for deregulation and diminishing protection for workers (Tombs and Whyte, 2013). In that context, the striking difference in the transposition of the OHS Framework Directive suggests that continental Member States are less prepared to qualify regulatory protections for worker safety than the UK.

This article examines the extent to which a VoC perspective can help explain this fault line over OHS regulation. In so doing, we seek to build upon the nascent debate about varieties of regulatory capitalism (e.g. Levi-Faur, 2006; Thatcher, 2007; Braithwaite, 2008; Guardianich and Guidi, 2016), which has expanded VoC's central concern with archetypal differences between the 'production' regimes of capitalist economies to consider their 'regulatory' regimes and the extent to which VoC can explain differences in the organization and function of the state. We will argue that there are good reasons to expect the character of OHS regulation to vary according to the dominant modes of economic coordination in different countries, but to make that argument we first outline the basic contours of VoC.

VoC's core claim is that capitalist economies are distinctively organized according to the extent to which firms use strategic or market-based methods to coordinate their activities with each other and with other actors, such as trade unions and sources of finance. Those modes of coordination are said to confer comparative advantages by promoting distinct competitiveness strategies. Thus, according to Hall and Soskice (2001), the coordinated market economies (CMEs) of continental Europe are typically characterized by dense networks of long term and trusting relationships between firms and other actors such as trade unions and financial institutions. This mode of strategic coordination favours incremental innovation strategies. By contrast, LMEs find comparative advantage through radical innovation strategies that are favoured by competitive market-based relationships between firms and other actors such as employees.

The effectiveness and stability of those strategies, however, depends on their reinforcement by mutually beneficial interactions with institutions in other spheres of the political economy. These so-called 'institutional complementarities' include the way in which different modes of coordination favour, and are favoured by, distinct kinds of industrial relations, employment protection and vocational training regimes (e.g. Hall and Gingerich, 2009;

Hay and Wincott, 2012; Schneider and Paunescu, 2012; Schröder, 2013). Thus, Hall and Soskice (2001) argue that the CME mode of coordination is enhanced through institutional complementarities such as strong industrial relations, heavy investments in specialized firm-specific training, and consensual decision-making. By contrast, the LME mode of coordination is said to be institutionally complemented by, *inter alia*, weak industrial relations, reliance on portable general skills, and hierarchical decision-making.

Moving beyond the original VoC framework, some scholars have identified a hybrid VoC in the mixed-market economies (MME) of the Mediterranean such as France, Spain and Italy. In MMEs, the state plays a central role in coordinating business and labour, which are more weakly organized than in Germany's 'managed capitalism' but have the power to veto state action or exercise constitutionally founded rights for compensation. Such institutional arrangements tend to be regarded as less complementary and consequently less competitive than LMEs and CMEs (e.g. Molina and Rhodes, 2007; Schmidt, 2003; Van Dam, 2014; cf. Guardiancich and Guidi, 2016).

VoC theory is not without its critics. Tests of the theory are sometimes controversial, not least because VoC categories are often hard to apply to the messy reality of existing political economies and sometimes because VoC concepts are unfairly stretched to apply to contexts that are beyond their explanatory power (e.g. Amable, 2003; Deeg and Jackson, 2007; Hall and Thelen, 2009; Hancké *et al.*, 2007; Schmidt, 2003; Witt and Jackson, 2016). Another problem with VoC theory is that its central concept of institutional complementarity is ambiguous and contested (cf. Crouch *et al.*, 2005). In its simplest formulation, institutional complementarity is used to capture synergistic effects between institutions; or as Hall puts it, 'that one (or more) institution(s) may enhance the effects of another institution (or of several others)' (Crouch *et al.*, 2005, p.373). However that definition is easily confused, both conceptually and empirically, with a number of other closely related but subtly differing concepts for describing relationships between institutions. For example, Boyer (2005) argues that two or more institutions may be observed to coexist, but without evidence of, or reason to expect, mutual enhancement, they might be best described as merely 'compatible' rather than 'complementary'. Höpner (2005), among others, also identifies a further state of institutional 'coherence' which arises from institutions sharing common origins or principles without necessarily being mutually enhancing and complementary. While such isomorphism is often associated with complementarity, Amable insists they 'are totally independent notions that may or may not coincide' (Crouch *et al.*, 2005, p. 372).

These conceptual difficulties are amplified by methodological challenges in empirically demonstrating complementarity. Mutual enhancement can be difficult to define and measure, while detailed historical analysis is required to show the dynamic co-evolution that is another hallmark of complementarity. Without such evidence, the literature on VoC has sometimes relied on abductive arguments that infer complementarity amongst institutions based simply on observed isomorphism and appeals to functional necessity. But functionalist approaches are liable to conflate institutional complementarity with mere compatibility or isomorphic coherence without some convincing *ex ante* prediction from theory as to why any observed co-variation might be driven by a dynamic of complementarity rather than other institutional mechanisms.

VoC scholarship has also historically tended to neglect regulation, reflecting what some see as the theory's general disinterest in the state (cf. Hancké *et al.*, 2009; Schmidt, 2009; Whitley, 2005). There is, however, some tentative evidence that a VoC approach might help

explain often noted variation both in the organization and stringency of national regulatory strategies in a range of domains (e.g. Vogel, 1996). Thatcher (2007), for example, has argued that despite several decades of neo-liberal reforms to network industries across the EU, distinctive national differences in the organization of informal regulatory institutions have persisted in ways that complement continuing contrasts in VoC. Building on that insight, others have tested the extent to which the independence of financial, market and utility regulators correspond to different capitalist coordination models, although so far they have had mixed findings (Maggetti, 2007; Guidi, 2014; Guardiancich and Guidi, 2016). Other research has shown that VoC can help explain substantial differences in the stringency of regulation. Menz (2009) and Ruhs (2013), for example, have shown that labour migration regulation co-varies with different economies' skills formation strategies, while Pierre's (2015) analysis of market deregulation observed that CMEs tend to impose both more and stricter rules on market actors than LMEs.

VoC scholars have yet to examine *ex ante* regulation to prevent occupational harms. There is, however, a wealth of VoC scholarship showing how the organization and stringency of other worker social protection regimes, such as employment security, wage bargaining rights and *ex post* social insurance arrangements for injured and sick workers, depend on the different configurations of employer and employee interests in CMEs and LMEs (e.g. Hall and Gingerich, 2009; Jackson and Kirsch, 2014). For example, Mares (2001), Estevez-Abe *et al.* (2001), and Hay and Wincott (2012) contend that CMEs support strong labour market protection and generous welfare regimes to protect significant investments by employers and employees in developing the firm- and industry-specific skills characteristic of those economies. By contrast, they argue that LMEs support weaker protections because the focus on portable generalist skills means that workers and employers are less committed to sustaining long-term employment relationships, and wages and employment conditions are set competitively through the market.

Extending such arguments to OHS regulation would provide a critical case for testing whether and how state regulation institutionally complements nationally distinctive VoCs. After all, health and safety regulation has long been a significant part of the fabric of legal obligations woven through employer–employee relationships in advanced economies. Indeed, protecting workers from accidents and ill-health was a driving concern in the creation of welfare states in the C19th. From that perspective, we might expect that the organization and stringency of *ex ante* risk prevention measures, no less than *ex post* social insurance systems, should vary depending upon the dominant modes of economic coordination in different capitalist welfare states. We develop three sets of broad predictions; one per ideal-typical variant:

- In CMEs, OHS regulation might be expected to be organized through dense sectoral networks of employers and employees in strong corporatist institutions underpinned by legal frameworks that sustain a relatively equal balance of power between the social partners, potentially also with strong sectoral orientations. In terms of stringency, we might expect that employers' and employees' interests would converge on strong *ex ante* safety measures to prevent accidents and ill-health both because employers have an interest in protecting their investments in skilled labour and because employees—beyond simple self-preservation—face problems in finding safer workplace alternatives because of relatively inflexible labour-markets.

- In LMEs, by contrast, OHS regulation might be expected to be more arms-length than in CMEs, taking the form of regulatory agencies and permissive legal frameworks oriented towards correcting market failures that, for example, prevent workers making informed choices or finding alternative safer employment. VoC theory might also predict weaker OHS regulation in LMEs because employers have less interest in retaining workers than in CMEs, while workers have greater flexibility—at least in classic liberal accounts (e.g. [Viscusi, 1983](#))—either to negotiate higher wages to reflect the risks they face or seek safer employment elsewhere.
- In MMEs, we might expect to find some traits of CME organization with the state playing a central role in coordinating business and labour. That also means that the stringency of OHS regulation seems less predictable than in the other two cases because it will be subject to a constant tug-of-war between powerful state intervention and institutionalized political and constitutional checks by business and labour.

3. Methods

To examine the extent to which VoC can explain the organization and stringency of OHS protections across Europe, we compared regulatory regimes in four European countries characterized by their proximity to different ideal-types of capitalist variety. Germany and the UK were selected as paradigmatic cases of a CME and LME, respectively. France was selected as a more complex MME, described by [Schmidt \(2003\)](#) as ‘state-led capitalism’, exhibiting both CME and LME characteristics. The Netherlands was selected for its different mix of CME and LME characteristics, oscillating over the C20th between what [Nijhof and van den Berg \(2015\)](#) have described as state-directed neo-corporatism and softer forms of decentralized coordination. All those countries are advanced EU economies, so that any differences in regulatory design would be hard to attribute to economic structure or state capacities (OHS enforcement capacities are similar for all four countries [[Hartlapp, 2014](#)]). OHS is also a cross-sectoral issue that is relevant to every workplace, so national comparisons are unlikely to be confounded by sectoral-specific arrangements that might outweigh national differences. Moreover, that cross-sectoral nature makes any differences in regulatory stringency hard to explain in terms of trade-protectionism.

We recognize that a larger sample of countries might better represent the increasingly recognized heterogeneity among countries within the same broad VoC categories (e.g. [Jackson and Kirsch, 2014](#); [Witt and Jackson, 2016](#)). However, our purposeful sample deliberately sacrifices breadth for the depth required to assess the co-evolution and institutional complementarity of OHS regulation with other coexisting institutional formations in each country. Thus to document the organization and stringency of regulatory activities we took a ‘regime approach’ ([Hood *et al.*, 2001](#)), which involved going beyond examination of black-letter law to understand the organization, practices and animating ideas of regulatory rule-setting and compliance activities. To that end we triangulated an in-depth literature review and policy document analysis with an extensive programme of interviews ($n > 40$) in each country with key regulatory officials, insurance and professional associations, business and labour groups, some of whom also provided feedback on earlier drafts. Interviews were transcribed and coded with QDA software for a qualitative analysis guided by VoC expectations but were also used for inductive identification of other institutional drivers of regulatory variety.

4. Organization and Stringency of OHS regulation in Germany, France, the UK and Netherlands

The 1989 OHS Framework Directive (89/391/EEC) was the EU's first comprehensive attempt to harmonize a diverse set of national OHS regulatory regimes that all emerged in the latter half of the 19th century. During the early industrial revolution, employers were free to do as they wished subject only to worker complaint and the weak threat of tort when accidents occurred. Pressure for reform mounted during the 19th century, however, as employers increasingly lost tort cases, workers demanded better conditions, and even the German army worried about its recruits' health. Consequently, all four countries created, within a decade or so of each other, distinct regimes for both regulating workplace safety as well as covering the costs of work-related injuries and illness. In the two sections below we examine the extent to which the organization and then the stringency of OHS regulatory regimes in our four countries are consistent with our predictions from VoC theory.

4.1 Organization of OHS Regulation

In this first section we describe the organization of the regulatory institutions, processes and actors involved in OHS regulation in order to test the extent to which it complements the dominant modes of firm coordination in our four countries as predicted by VoC theory.

Germany

In Germany's CME, the social partners are heavily involved in standard-setting, enforcement and compliance in what is known as a 'dual system', which brings together largely enabling statutory regulation with a largely sectorally organized corporatist social insurance system that sets detailed compliance criteria and ensures close coordination with the needs of the wider political economy. The origins of this German approach dates back to the 1891 Industrial Code, whose broad obligations have been elaborated in a number of further statutes, ordinances and increasingly through the transposition of EU Directives. Some of those rules are issued by Federal government-led corporatist committees, which operate, according to an employer representative on the Committee for Hazardous Substances, on the basis of reaching a 'socio-political consensus'. The State, however, has overwhelmingly delegated the task of specifying detailed legal compliance criteria to the social insurance system since the late C19th.

Established by the 1884 Industrial Insurance Act, the German social insurance system abolished the civil liability of employers in favour of a no-fault liability scheme of tabulated compensation for all income and medical costs of work-related injuries, illness and death. The system is administered by the *Berufsgenossenschaften* (BGs); a set of powerful regional and sectoral mutual trade associations that typify the German model of *coordinating*, rather than directing, the economy, being funded through compulsory contributions from employers but governed jointly by employers and employees. The BGs have legal duties under the Social Code to prevent, compensate and rehabilitate, and it is their corporatist technical committees that flesh out the vast majority of legal compliance criteria through formidable tomes of detailed and often legally binding accident prevention rules, standards and guidance.

The BGs' active role in preventing workplace accidents dates back to Bismarck's vociferous opposition to state regulation as an illegitimate interference in private production; not

least, as Hennock (2007) has entertainingly noted, because of his dim view of a factory inspection of his own sawmill. In fact, this corporatist self-regulatory system built on the long-standing freedom of the German guilds—the *Gewerbefreiheit*—to organize economic production. Delegation of OHS rule-making to the BGs institutionally complemented those traditions by helping ensure the coordination of rules with sectoral needs, while simultaneously helping BGs manage demands on their insurance funds. Indeed, as Mares (2001, p. 205) has noted, the BGs demanded rule-making powers to ensure their financial sustainability as a *quid pro quo* for employer acceptance of compulsory strict liability insurance. These days, BG decisions on insurance premiums, such as bonus/malus schemes calibrated to firm safety performance, are negotiated by tripartite corporatist committees (Ayaß, 2012).

The close involvement of employers and employees in rule-making is mirrored by other highly coordinated compliance, enforcement and rehabilitation activities. For example, since the 1970s, worker representatives have had significant rights to participate in works safety councils shaping how firms implement OHS rules; rights which have been jealously guarded even through court cases (Schaapman, 2002). While state enforcement of the regime is the formal responsibility of the Länder Labour Inspectorates, which date back to 1853, these inspectorates largely draw on the BG accident prevention rules, technical standards and guidance. Moreover, state enforcement is also complemented by the BGs' own technical inspectorates who principally offer sector-specific compliance advice, albeit backed up by some enforcement powers, and undertake approximately twice the number of inspections as their Länder counterparts (DGUV, 2014; LWSI, 2011–2013). Finally, BGs also provide a wealth of other services that complement sectoral compliance needs including hospitals, research institutes and an industrial safety training scheme that is the second-largest provider of education in Germany after state schools (HSE, 1996, Ch.3, p. 118).

France

Like Germany, France also takes a 'dual system' approach to OHS that combines both regulation and social insurance, but, as might be expected of an MME, they are more poorly coordinated, with the state having a stronger role in regulation than the social partners, and the largely sectorally organized corporatist social insurance system creating its own rules that operate in parallel to statutory regulation. The origins of this regulatory approach date back to the 1893 Industrial Establishments Act, whose obligations were further elaborated over the C20th through EU Directives and an ever accumulating mass of detailed regulations in the statutory Labour Code issued by the Ministry of Labour. The rules of the Labour Code are coordinated through a corporatist body known as the COCT (*Conseil d'Orientation sur les Conditions de Travail*), but strategic decisions are reserved for state officials with social partners confined to an advisory role. The central and constraining role of the state is seen as a source of friction by the social partners. As a senior Labour ministry civil servant explained to us, '[The COCT] wants . . . social, economic and state actors to design policy together but it's not the French culture; the Ministry of Labour resists this.'

The state also plays a role in leading employer–employee coordination over implementation. Worker participation in firm-level safety committees was legally strengthened in the 1980s, but research suggests that they remain relatively weak (Rivest, 2002). The Ministry of Labour's regionally based Labour Inspectorate, the DIRECCTE, has advisory functions that could strengthen those processes; indeed, inspectors are legally invited to firms' works

councils meetings. In practice, however, inspectors are trained as lawyers and see their primary role as enforcing the law. As one DIRECCTE representative explained, 'Even if we don't often use criminal prosecution, we are seen more as gendarmes than as advisors.' Moreover, the Ministry of Labour struggles to coordinate the activities of its inspectorate with its own strategic priorities because inspectors benefit from unusual levels of individual autonomy. As the DIRECCTE representative continued, 'The Ministry wants to set priorities but we resist this; we know our companies and set our own priorities . . . It's a very special position unlike other inspectorates.' In fact, such problems have been observed in other field services, suggesting more systemic coordination problems within France's MME (Cole, 2008, p. 31).

As in Germany, the French social insurance system also has a significant regulatory function but facilitates more strategic coordination between firms and employees than the Labour Code. The social insurance system was created by the 1898 Workmen's Compensation Act, which, as in Germany, replaced the civil liability of employers in favour of a no-fault worker compensation scheme to cover the lost income and medical costs of work-related injuries, illnesses and fatalities. The regime, which was absorbed into the social security system in 1946, is administered by the *Caisses*; a set of powerful national, regional and sectoral mutual associations funded by mandatory employer contributions and governed by the social partners. Like the German BGs, corporatist technical committees of the *Caisses* issue their own accident-prevention rules. While these rules are principally advisory in nature, they compensate for otherwise relatively weak strategic coordination between the State, firms and employees over OHS, while also helping manage financial demands on insurance funds. The *Caisses*' role in preventing accidents in the workplace is strengthened by their own dedicated corps of engineers and technicians who, in contrast to the DIRECCTE, are '80% advisors and 20% gendarmes' as a DIRECCTE representative explained. As in Germany, decisions on insurance premiums—including bonus/malus variations according to firm safety performance—are negotiated by corporatist committees, and the *Caisses* even finance workplace improvements to reduce compensation costs (HSE, 1996, p. 65).

UK

In contrast to the dual systems of Germany and France, workplace accident prevention in the UK's LME relies principally on statutory regulation, which is overseen by residual corporatist arrangements to coordinate regulation with the needs of the wider political economy but institutionally decoupled from largely tax-payer funded compensation and medical treatment regimes. The regulatory regime was founded on the Factory Acts, which extend back to 1833. Their broad objectives to safeguard life and limb and promote public health were fleshed out through a notoriously complex and gap-laden patchwork of highly prescriptive regulatory rules. However, in unusual contrast to the broad UK tradition of informal consultation over legislation, the rules were subject to statutory consultation, not least to help address inevitable information asymmetries (Factories Act, 1937, Schedule 2).

The Health and Safety at Work etc Act 1974 (HSWA) fundamentally transformed that regulatory regime, replacing inflexible rules with the universal principle that employers must ensure, 'so far as is reasonably practicable' (SFAIRP), the safety, health and welfare of employees (Baldwin, 1992; Demeritt *et al.*, 2015). That principles-based approach was intended to promote safety through 'personal responsibility and voluntary self-generated effort' as Lord Robens—the regime's architect—expressed it (Robens, 1972, para. 28). The

new approach has been described as ‘enforced self-regulation’ (Braithwaite, 1982), which seeks to capitalize on the internal compliance expertise and capacities of regulatees by requiring employers themselves to justify how their decisions meet regulatory requirements under criminal law.

The new approach was also strongly shaped by contemporary British experiments with corporatism. An unusually powerful independent regulator, the Health and Safety Commission (HSC), was created as a tripartite corporatist body to make policy and oversee a new independent expert inspectorate—the Health and Safety Executive (HSE). Employers were also legally obliged to consult union, and later non-union, safety representatives where they had been appointed. Those corporatist arrangements, as Fairman (2007) has persuasively argued, were necessary to build political legitimacy for the regime’s explicit cost-benefit philosophy, as evidenced by the explicit continuing support of both unions and employers in a recent government review (Lofstedt, 2011). Over time, however, those arrangements have become weaker; worker consultation has diminished with declining union membership (Walters, 2002, Ch.9), and, in 2008, the HSE absorbed the HSC and became nominally subject to direction by the Secretary of State.

Inspection responsibilities are divided between expert inspectors from the HSE and local government, who combine the advisory and enforcement functions that are more separated out in Germany and France between their state and social insurance inspectors. As one former inspector explained, ‘if there’s been a bad accident you put your policeman’s hat on . . . ; but normally you’re an adviser or teacher, trying to feel how well the company is managing health and safety’.

Unlike Germany and France, arrangements to cover the costs of work-related accidents and sickness play no significant role in preventative OHS regulation. To supplement a weak tort regime, the 1897 Workers’ Compensation Act established a limited no-fault liability regime, which was funded through employers’ private insurance without regard to the riskiness of individual workplaces (Lewis, 2012). After World War II, the Beveridge reforms socialized injury and illness costs through taxpayer-funded social security benefits, a state industrial injuries compensation scheme, and the National Health Service (NHS), which have little incentive or capacity to have their own regulatory functions. Employee rights to sue for damages were retained to complement the residual nature of the welfare regime, but only where harm is ‘reasonably foreseeable’, and since 1990, the state has deducted medical costs and social security benefits from successful awards. Insurance payouts now exceed the industrial injuries scheme, but premiums account for only 0.25% of national payroll and only half of employers employ enough workers to be rated according to accident record (Lewis, 2012).

Netherlands

The Netherlands, like the UK, relies on statutory regulation to prevent workplace injuries and illness, but its organization has shifted from state-directed coordination towards softer forms of sectoral-level coordination between the social partners, and there is increasing coordination with the corporatist social insurance system, which had long been decoupled from preventative regulation. Initially founded on the 1895 Safety at Work Act, the regulatory regime was fleshed out over the next century through a complex mixture of detailed statutory decrees, regulations and guidance. Though formally issued by the Ministry for Social Affairs and Employment, detailed rules—in keeping with Dutch concerns to reinforce

social consensus (Kickert, 2003)—have entailed extensive formal and informal consultation through powerful tri-partite corporatist institutions, such as the Working Environment Council and the Social and Economic Council. To further strengthen corporatist coordination, the 1980 Working Environment Act (WEA) sought to emulate the UK's self-regulatory approach by emphasizing principles rather than detailed rules; an approach which became established in 2007 when the detailed regulations started to be replaced by non-statutory 'Labour Catalogues'. Reflecting CME organizational logics, Labour Catalogues are elaborated at a sectoral level by employer and employee associations and give sector-specific advice on meeting general regulatory obligations (Labour Foundation, 2007).

Implementation and enforcement, while formally rule-bound, are also relatively well coordinated. The 1980 Work Environment Act significantly strengthened worker participation in firm-level safety issues, principally through works councils shaping shop-floor practices (Popma *et al.*, 2002). That approach has been complemented by the Labour Inspectorate's (SWZ) diagnostically Dutch approach to enforcement, which Van Waarden (2009) terms 'informal consensualism'. The inspectorate, which was established in 1919 as Netherlands' first dedicated national inspectorate and is an arm of the Ministry of Social Affairs and Employment, has traditionally favoured pragmatic and non-legal negotiated solutions, though Wilthagen reports that in practice negotiation has largely been with 'firm's management and, less importantly, workers' (Popma *et al.*, 2002, p. 191). That negotiated approach has been reinforced by legal duties on inspectors to persuade rather than punish and on employers and employees to find 'reasonable' solutions.

Like Britain, the Dutch social insurance system, which combines both Bismarckian and Beveridgean elements (Hemerijck, 2011), has historically had no role in preventing workplace accidents and illnesses. To make *ex-post* compensation costs predictable for employers and workers alike, the 1901 Work Accidents Act prohibited civil litigation in favour of a disability benefits system funded through non-statutory employer contributions to a set of mutual insurance associations—the *Bedrijfsverenigingen*—jointly controlled by employer associations and trade unions. Over the 20th century the *Bedrijfsverenigingen* expanded to provide disability benefits for all sectors. Unlike Germany and France, however, premiums related to employee numbers and salaries rather than workplace risks, which provided no mechanism for containing costs to the system. That started to change in the 1980s when, faced with an economic downturn, employers opportunistically took advantage of sickness funds to avoid compulsory redundancies. In response, the state lifted the ban on civil litigation, incorporated the funds into the Social Security Agency (UWV), introduced risk-based premiums and required employers to fund the first two years of benefits. New links between prevention and compensation were also recently created by merging the Labour and Social Security Inspectorates and the UWV is now consulted over the Labour Catalogues. The medical costs of work-related injuries, however, are entirely decoupled from OHS regulation, since they are met by mandatory individual health insurance.

4.2 The stringency of OHS regulatory protections

We now go on to describe whether and how the stringency of OHS regulation varies across our four countries in order to test the extent to which any variation fits with VoC predictions about institutional complementarities. We assess relative stringency not as arithmetical deviations from the EU Directive's absolute goal to 'ensure' the health and safety of workers,

but by qualitatively investigating the explicitness, rationalizations and logics by which safety is traded-off against the cost of prevention.

Germany

Germany's transposition of the EU Framework Directive in the 1996 Occupational Protection Act appeared to offer workers high levels of occupational safety by demanding, without qualification, 'that danger to life and health is avoided wherever possible and the remaining hazards are reduced to a minimum'. While this may seem to confirm CME-type prevention expectations, in fact, employers' responsibilities under the prior statutory regime, dating back to the 1891 Industrial Code, had been limited to safeguarding workers against dangers 'insofar as permitted by the nature of the business'. The statutory aim of avoiding danger 'wherever possible' is, in practice, more of an aspiration than an absolute legal requirement. Indeed, for most of the 20th the headline goal of the German OHS regime was not judiciable by the courts, which have never expected employers to do everything possible irrespective of cost (Wank, 1992). The statutory imperative to avoid 'danger' has instead served to provide a necessary legal basis for state interference with rights to economic activity and uphold the German constitutional provision that 'Every person shall have the right to life and physical integrity' (Article 2(2)).

Such constitutional considerations make it difficult for the state to formally adjudicate the risk-cost-benefit trade-offs inevitably involved in regulating OHS. As a Länder inspector explained to Haunert (2012, p. 31), 'the question which arises under a cost-benefit perspective would be "who is more entitled to this constitutional protection?"' In place of consequentialist questions about how safe is safe enough, the German regime focuses instead on establishing procedural norms such as 'generally recognized technical rules' and best available technology, '...precisely to avoid discussion of costs and benefits,' as a Federal Ministry of Labour representative explained to us. Thus, employers' preventative duties under the Accident Insurance Law were oriented towards following the rules of the BGs without explicitly considering the outcomes that resulted from doing so (Schaapman, 2002).

Though cost-benefit considerations may not be explicit, they still informally shape rule-making by corporatist statutory committees and BGs (Paul and Huber, 2015). Hennock (2007, p. 99) has argued that from the outset, BGs were expected to internalise costs so that any 'safety measures whose costs could not be justified by clearly foreseeable savings in compensation payments were ruled out'. Likewise, a member of an expert committee of the Federal Institute for Occupational Safety and Health (BAuA) suggested that 'socio-economic analyses always play a role' in Federal rules too. He explained, for example, that 'the [scientific] MAK Commission sets a limit for substance X, but then the [corporatist] Committee on Hazardous Substances says, "we believe you, but we can only achieve ten-times that limit without bankrupting companies".' 'It's always a negotiation' as another employer representative put it. One illustration is the exposure standard for carcinogenic diesel engine emissions for underground mining, which has historically been three times less stringent than both the limit for above-ground workplaces (Dahmann and Bauer, 1997) and the limit for mines the UK's HSE considers practically 'achievable' (Dabill, 2005, p. 4).

Trade-offs between safety and cost are also accommodated through discretion in implementation and enforcement. Firm safety committees play an important role in negotiating how rules are implemented to fit the circumstances of each workplace. One safety engineer argued that 'we look for reasonable solutions that both sides [employers and employees] can

live with; ... one naturally looks at cost-benefit considerations'. Such negotiations are particularly facilitated when BG rules are framed in flexible terms such as delegating judgements about best available technology to guild-style 'masters'. At the same time, rule enforcement follows the Administrative Procedures Act which requires sanctions to "be proportional with costs and benefits" of non-compliance as one Lander Inspector explained. Most significantly, perhaps, compromises between cost and safety are promoted through the very logic of insurance. Premiums are fine-tuned to past safety performance to incentivize improvements, though that logic balances the *ex ante* costs of accident prevention against the *ex post* costs of accidents rather than accident prevention *per se* (Matchan, 1985).

France

Like Germany, France transposed the EU Framework Directive without qualification, requiring employers to take all 'necessary measures to ensure the safety ... of workers' (Article L.4121-1). That was consistent with long-standing obligations under the 1893 Industrial Establishments Act for employers to provide 'clean and safe working conditions' for their workers. These duties were fleshed out over the C20th in the rules of the Labour Code, which as Chaumette (1992, p. 35) has noted cannot be formally qualified by consideration of 'cost, utility, technical difficulty or efficiency of safety measures'. As a Ministry of Labour representative explained, 'the vision of a cost-benefit analysis is not accepted in France'; because it clashes with the constitutional duty of the state to ensure to every citizen 'protection of health, material security, rest and leisure' (Preamble, 1946 Constitution, §11).

As in Germany, however, that unqualified regulatory goal of safety has served more as an aspiration than literal principle of prevention; indeed it was not judicable in France for most of the C20th. Instead, safety was effectively defined in terms of compliance with the detailed rules fleshed out in the Labour Code. While those rules do not formally embody cost-benefit trade-offs, in practice, corporatist discussions at COCT entail considerations of how to balance the costs of protection against marginal increases in safety. As a civil servant from the Ministry of Labour explained, 'Cost and benefits are considered amongst other things. ... but it doesn't occur within a formal and predefined framework.' For example, the civil servant observed that while the safest way to make a small 10-minute repair to a water tower would 'take 15 weeks to first build a scaffold ... we will accept ropes and climbers, if there is no alternative ...'.

Trade-offs between safety and cost are also tolerated by the enforcement system. DIRECCTE inspectors told us they spend as much, if not more, time enforcing general labour law (cf. HSE, 1996, p. 53), but when they do focus on OHS, they are forced to exercise discretion in reconciling the Labour Code's inflexible and unqualifiable rules with workplace realities. As a Directte inspector explained, 'Typically we'll say: "Your company has ten serious problems, but three are really wrong that you must fix within two months, then the others ..." well, obviously there is some acceptability in practice.' Enforcement gaps are explicitly acknowledged by the DIRECCTE; as one recent official report poetically stated, 'The Law in practice is, by nature, not fully overlapping with the Law ... Full compliance with the law is aspirational' (DIRECCTE, 2012, pp. 32/33).

As social insurers the Caisses do not primarily focus on law enforcement but instead on containing costs through prevention rules and insurance premiums. While we were told that explicit discussion of socio-economic considerations in designing prevention measures is

resisted by employee representatives, they are nevertheless taken into account in implementing those measures. As a representative of a CARSAT explained, ‘With our technical expertise, we are still pragmatic. We’re not going to ask a company with two employees to implement a measure that costs €1m.’ As in Germany, insurance premiums reflect past safety performance—known as the ‘cost of risk’—to incentivize safety improvements, but as Rivest (2002, p. 90) has argued, that has shaped firm compliance behaviours in ways that follow a ‘logic of compensation’ rather than simple safety improvement.

UK

In contrast to Germany and France, the UK’s qualified implementation of the EU Framework Directive reflected the explicitly consequentialist philosophy of optimising risk-cost-benefit trade-offs introduced by the 1974 HSWA. Both employers and employees had complained to the landmark Robens Inquiry into the prior rules-based regime, that ‘the sheer mass of this law, far from advancing the cause of safety and health’ led to inflexible safety ‘standards’ and inconsistent levels of protection across sectors (Robens, 1972, para.28, p. 458). Sometimes the rules were unnecessarily burdensome, such as multiple guards for powered saws even if they were museum exhibits (Demeritt *et al.*, 2015). At other times, the rules were too lax. As one inspector explained, ‘the old regulations only required guard rails for platforms higher than 2m. If it was 1.95cm you didn’t have to have guard-rails, but you’d probably still get injured if you fell’. Some sectors, such as retail, were not regulated for decades.

The HSWA’s ‘principles-based’ approach drew on case-law concerning a collapsed mine roadway that killed a miner. In that case, the Court of Appeal first introduced the term ‘risk’, ruling that ‘reasonably practicable’ is a narrower term than “physically possible” and that it would have been unreasonable to expect the National Coal Board to shore up all roadways, since the cost, time and effort required to reduce risk should not be in ‘gross disproportion’ to the margin of safety gained [*Edwards v. National Coal Board (NCB)*, [1949] 1 All ER 743]. The HSWA generalized that risk-cost-benefit approach to all workplaces by making it a criminal offence to expose workers to an unreasonable level of risk from *any* hazard, whether or not anyone was actually harmed. The HSE made the risk-based calculus underlying that principle more explicit when it elaborated its ‘Tolerability of Risk’ framework in the late 1980s to explain to stakeholders how it made trade-offs between risk, cost, and benefit in its enforcement decisions (HSE, 1998).

The explicit focus on risk is largely the result of the HSWA reframing regulation from a procedural focus on rule-based compliance to a principles-based focus on anticipated outcomes. Like the common law duty of care, which is limited to circumstances where harm is ‘reasonably foreseeable’ (*Donoghue v. Stevenson*, 1932 AC 562), the SFAIRP principle restricts employers’ criminal liability to harms that were foreseeable, while also requiring them to take reasonable precautions against risk even if no harm actually occurs. Indeed, without that qualification, employers would face unlimited liability given that it will always be ‘physically possible’ to do more than what is reasonably practicable. As one senior retired HSE official commented, ‘we could retrofit the London Underground with straight platforms . . ., but the costs would be horrendous’. This flexibility ensures that safety standards fit with wider institutional contexts and constraints.

Without prescriptive rules to define what is ‘reasonably practicable’ in every case, the UK relies on regulatory enforcement by a technically expert inspectorate that can judge the

adequacy of employers' risk assessments of reasonable practicability. Those judgements could mean going beyond old rules. As one inspector explained, 'prior to the HSWA, we couldn't require mechanically fed factory saws to be totally contained, even if the safety gain far outweighed the cost'. Inspector discretion, however, is constrained by case law and best-practice guidance published by the HSE and other bodies such as the British Standards Institute. In turn, the criminal law framework of OHS regulation provides strong incentives for employers to heed inspector judgment. Black (2002) has characterized this process as a 'regulatory conversation' in which employers and inspectors identify practices that the courts are likely to regard as constituting legal compliance.

Netherlands

The Netherlands has, over time, increasingly qualified the goal of safety. Whereas the 1934 Safety Act demanded 'safe and sound' working conditions and a standard of protection that is the 'highest possible one in the light of technical developments', the 1980 Working Environment Act (WEA) sought to emulate the spirit of the UK's HSWA by qualifying the general duty of employers to 'aim for maximum possible safety' with the proviso 'as far as can reasonably be required'. That qualified promise of safety persists to this day, notwithstanding the transposition of the EU framework Directive. Likewise, the Civil Code only requires employers to 'protect workers against danger to life. . . as can reasonably be expected given the nature of the work' (Article 1638x).

As in Germany and France, however, these headline goals are less important than the specific rules that give them practical meaning. Rule-making is done in consultation with powerful tri-partite corporatist institutions, and as such has always reflected bargaining over trade-offs between safety, profits, wages and jobs (e.g. see Walters *et al.*, 2003, p. 73). This prescriptive approach persisted alongside the qualified goal of WEA for several decades until the introduction of the non-statutory Labour Catalogues in 2007. Those sectoral-level Catalogues, according to the Labour Foundation (2007, pp. 9–10) were a 'joint product' of the 'social partners' aimed at giving them 'more freedom to determine for themselves which solution or general approach would be possible and desirable'.

The shift in the Netherlands then has not been about weakening worker protections so much as giving firms more flexibility in how to protect workers. This shift has been mirrored in the ongoing tension between the formal rules-based regulatory approach towards OHS and the broad tradition of consensual regulatory enforcement. The accommodative approach of the inspectorate towards regulatory enforcement was given greater legal footing under the 1980 WEA by qualifying all duties in terms of 'as far as can reasonably be required', which as De Gier notes (1992, p. 148) formally enables compliance to be dependent 'on circumstances such as the cost of investment or current state of knowledge'. According to Rimington *et al.* (2003), the overall emphasis on dialogue between inspectors and employers to determine how to comply has led to a strong resemblance between the UK and Dutch regimes.

However, recent efforts to make regulatory requirements more flexible and proportionate are still constrained by the rules, codes and guidance that courts use to assess legal compliance. For example, stung by public criticism of lax enforcement in the early 1990s, the Inspectorate's approach became more legalistic and less flexible (Popma *et al.*, 2002). On those rare occasions when cases go to trial after accidents, courts have interpreted the concept of reasonableness in terms of technical possibility, or as one labour lawyer put it to us,

as ‘geared towards the elimination of risks’, rather than in terms of how safe is safe enough considering costs. Frustration with that legalistic approach has led some industry representatives and politicians to advocate a more quantitative risk-based definition of ‘reasonable’, but that has proved elusive in the context of significant sectoral variation over what constitutes acceptable risk (Rimington *et al.*, 2003).

5. Discussion

The findings set out in Section 4.1 above and summarized in Table 1 below show how the *organization* of OHS regulatory regimes varies across our purposeful sample of four countries. These patterns are broadly consistent with the predictions we derived from VoC theory about their distinctive modes of coordinating the wider political economy.

However, the findings presented in Section 4.2 and summarized in Table 2 below did not suggest any similar systematic differences in the *stringency* of OHS regulatory protections across our countries, as VoC theory would predict. All our countries make trade-offs on safety—albeit in different ways—and, as noted in the Introduction, while fatality rates in the UK are among the lowest in the EU, differences between our four countries are small in absolute terms.

We seek to explain these divergent findings on organization and stringency in the discussion below.

There are good reasons to argue that the organization of the OHS regulatory regimes are, at the very least, ‘coherent’ with the dominant modes of coordination between firms and other actors in each country. That coherence can be partly explained in terms of isomorphic pressures without making any stronger claims about complementarity. Although the OHS regimes in our four countries emerged contemporaneously and borrowed from one another in confronting common problems (Hennock, 2007), they are now well into their second century of existence, and it would be surprising indeed if isomorphic pressures had not pushed each country’s regime down nationally distinctive evolutionary pathways.

Thus in Germany, Bismarck’s opposition to state OHS regulation in favour of coordination through guild-style associations is coherent with the often noted German preference for self-regulatory solutions that draw on the governance capacities of business and other societal actors (Paul and Huber, 2015); a preference reinforced by the strict constraints on state interference with rights to economic activity imposed by the post-war Constitution. While France also has a dual OHS system, the greater emphasis on state action is coherent with the typically central role of the French state in regulation, with its complex and inflexible administrative and legal culture (Dupuy and Thoenig, 1983) creating uniquely French coordination problems requiring worker and employer preferences to be informally negotiated through enforcement practices and the social insurance system. By contrast, the UK’s regulatory approach to OHS involves arms-length state regulation typical of an LME, albeit with a high-level—if steadily weakening—corporatist mechanism to coordinate the regulatory preferences of firms and employees. Finally, the Dutch approach to OHS regulation is coherent with the Dutch tradition of ‘polder politics’ based on extensive consultation and compromise among the social partners and interests (Hendriks and Toonen, 2001); reflected in the shift from a state-led corporatist model onto sectoral associations coupled with an enforcement culture of ‘informal consensualism’ (Van Waarden, 2009).

Table 1. The organization of regulatory regimes for OHS in Germany, France, the UK and Netherlands

VoC hypotheses	Empirical findings	
	Standard-setting	Compliance
<i>Germany</i>		
CME regulation organized through dense sectoral networks of employers and employees in strong corporatist institutions underpinned by legal frameworks that sustain a relatively equal balance of power between the social partners	Corporatist representation on statutory standard-setting committees, with detailed compliance rules devised and issued by self-regulating corporatist social insurance BGs	Compliance shaped by worker representation on firm-level works councils, policed both by Länder Labour Inspectorates and by technical inspectorates from corporatist BGs, and incentivized by fine-tuned insurance premiums
<i>France</i>		
MME regulation sees state playing more central role than in CMEs in coordinating business and labour interests to organize rule-making and implementation	Advised by corporatist COCT, state issues detailed rules through statutory Labour Code, with parallel guidance also provided by sectorally organized corporatist social insurance <i>Caisses</i>	Compliance weakly shaped by worker participation in firm-level safety committees, policed by state labour inspectors, supported by inspectors from sectorally organized corporatist social insurance <i>Caisses</i> , and incentivized by fine-tuned insurance premiums
<i>UK</i>		
LME regulation organized through independent agencies operating at arms-length from sectoral interests in permissive legal frameworks oriented towards correcting broad market failures	Enforced self-regulation of universal principle of SFAIRP overseen by powerful independent regulator (HSE), albeit with weakened tri-partite oversight	Compliance with SFAIRP enforced by expert state inspectors from HSE and local authorities within criminal law framework. Little influenced by insurers or worker participation on residual firm-level safety committees
<i>Netherlands</i>		
CME/LME regulation sees oscillation between state directed and softer forms of decentralized corporatism to coordinate business and labour interests in rule-making and implementation	Extensive tri-partite participation in rule-making with detailed statutory regulations recently replaced by non-statutory Labour Catalogues giving sectorally specific advice on meeting general regulatory obligations	Compliance shaped by worker participation at firm-level, policed by state Labour Inspectorate with strong culture of consensualism and historically no role for social insurers

The coherence of the four regimes with their respective country settings reflects, as Thatcher (2007) found with his study of network regulation, remarkable persistence of national regulatory styles. Such stable equilibria would be hard to imagine if regulatory regimes were swapped between countries. For example, just as a British style arms-length

Table 2. The stringency of regulatory protections for OHS in Germany, France, the UK and Netherlands

VoC hypotheses	Empirical findings	
	Standard-setting	Compliance
<i>Germany</i>		
CME regulation sees strong <i>ex ante</i> safety measures agreed by social partners to complement employer investments in training and labour market inflexibilities preventing exit to safer workplaces	Headline statutory goal of avoiding danger, but qualified in practice through corporatist social insurance rule-making, which embodies implicit cost-benefit trade-offs	Trade-offs and cost considerations accommodated through flexible interpretation of 'state-of-the-art' standards by state and insurance inspectorates
<i>France</i>		
MME regulation sees intermediate and potentially unstable level of protection depending on tug-of-war between powerful state intervention and institutionalized political and constitutional checks by business and labour	Headline statutory goal of ensuring safety, but qualified in practice through detailed Labour Code and insurance rules involving implicit cost-benefit trade-offs negotiated by corporatist actors	Trade-offs and cost considerations accommodated through gaps in state enforcement and insurer tolerance of practicable rather than complete prevention
<i>UK</i>		
LME regulation sees weak OHS protections as employers have little interest in retaining workers, who have flexibility to negotiate higher wages to reflect workplace risks or seek safer employment elsewhere	Headline statutory goal of safety formally qualified 'so far as reasonably practicable', which can also require employers to exceed conventional standards where it is practical to do more	Acceptability of trade-offs judged by expert inspectors deploying an 'enforcement pyramid' of sanctions in proportion to risk and criminal prosecution deterring gross violations
<i>Netherlands</i>		
CME/LME regulation sees broadly strong levels of protection agreed by social partners but potentially weakening in face of greater labour market flexibility	Headline statutory safety goals formally qualified 'as far as can reasonably be required', with trade-offs accommodated through detailed corporatist-designed rules	Trade-offs and cost considerations accommodated through culture of 'informal consensualism' and formal requirement for corporatist consensus

national regulator with only a high-level corporatist character would not be 'compatible' (in Boyer's (2005) sense) with a German federal system that delegates power to strong sectoral corporatist associations, so Germany's devolved regulatory model of social partner controlled BGs would struggle to coexist alongside Britain's centralised welfare state.

However, our qualitative historical research suggests that coherence between the organization of OHS regulation and mode of coordination is not just the result of mere isomorphism shaping each country's OHS regime, but is fashioned by a stronger dynamic of complementarity. That complementarity does not so much arise from a direct mutually enhancing relationship between the two, but rather it arises because they are both tightly

coupled to, and complementary with national welfare systems. Thus while welfare systems have long been argued to complement national production regimes (e.g. Estevez-Abe *et al.*, 2001), our research has uncovered a hitherto unremarked mutually reinforcing relationship between those systems for securing the welfare of workers *ex post* and the organization of *ex ante* OHS regulation. That three-way complementarity is perhaps most readily seen in the German and British cases.

In the German Bismarckian social insurance context, the creation of mutual insurance funds in the form of the BGs enhanced wider corporatist collaborations between business and labour, but required some form of regulation to ensure the financial sustainability of the funds in the face of unlimited no fault liability. That problem was solved by not just handing the BGs control over premiums but also by giving them powers to prevent accidents through setting regulatory standards, giving advice and 'enforcing' their own sectorally specific rules in parallel with legal enforcement by state inspectorates.

By contrast, the UK's Beveridgean approach to welfare ensures a safety net for workers independent of their contract of employment to facilitate worker mobility, but this then poses a different cost-control problem to that of Germany. Disconnected from employers, the taxpayer-funded NHS and universal benefits regime have neither the knowledge, capacity nor incentive to impose preventative controls on employers because occupational health and safety accounts for just a small proportion of their costs. The state's principal mechanism for containing welfare costs comes from crackdowns on disability benefits and constant handwringing over the NHS picking up the costs of a wide set of social ills. That leaves the statutory regulatory regime operating only according to a logic of prevention rather than insurance, with a principles-based approach ensuring its reach across all workplaces, which enjoy the flexibility diagnostic of an LME to determine precisely how to meet their SFAIRP duties.

In France, the relationship between regulation and the welfare state is more complex and less complementary. The French *Caisses* have faced the same cost-control problems of the BGs, but they have been unable to emulate the BGs because the French Republican tradition puts the duty to regulate firmly on the State. Instead, the *Caisses* have sought to control compensation costs by developing and 'enforcing' their own detailed 'accident prevention' rules, which operate in parallel to, but are poorly coordinated with, the state Labour Code.

In the Netherlands, the *Bedrijfs* faced similar cost-control problems as their Bismarckian counterparts in Germany and France, but addressed these challenges differently. Historically these compensation funds were uninvolved in preventative regulation because of their underlying philosophy that, according to Popma *et al.* (2002, p. 181) 'originated largely from Christian forms of charity and mutual and professional arrangements, [making] the system . . . immune to any instrumentalist policies'. In the face of escalating costs of sickness and disability benefits, however, the institutional equilibrium was disturbed and the reformed social security regime has been forced to play more of an active role in prevention and regulation.

In contrast to that three-way complementarity between the organization of OHS regulation, welfare systems and modes of coordination in different VoCs, however, our research does not suggest any systematic differences in the *stringency* of OHS regulatory protections across our countries. Although striking differences in headline regulatory goals give the superficial impression of unqualified protection in Germany and France with the Netherlands drifting towards the qualified approach of the UK, as might be predicted by

VoC, our research shows that in practice all four countries tolerate trade-offs on the costs of ensuring workplace safety. That finding is consistent with fatality data which shows that the rates are within a few multiples of each other across all four countries, and that if anything, Germany, and particularly France, which do not qualify their legal requirements for safety, perform worse than the UK and the Netherlands which do permit such qualifications.

While trade-offs are common to all our four countries, however, there are striking institutional differences in where, how and on what basis those trade-offs are made. Thus in the absence of qualified headline goals of safety in the rules-based regimes of Germany and France, trade-offs are accommodated in the corporatist-designed rules, insurance premiums and enforcement practices of state regulators and insurance associations. By contrast in the principles-based regime of the UK, trade-offs are explicitly made on the regulatory goal of safety, subject to criminal law sanctions. In the Dutch rules-based regime, regulatory goals are formally qualified with trade-offs accommodated in the corporatist-designed rules and enforcement practices of state regulators. We can go a long way to explain those institutional geographies by considering how trade-offs are filtered through three institutional variables in each country; i.e. the legal systems, state traditions and character of coupling between regulation and welfare regimes.

A first institutional variable shaping the explicitness of trade-offs concerns the contrasting legal systems of the UK and the other three countries, which make it difficult to compare the stringency of regulatory protections by reference solely to headline law. The British common law tradition places great weight on consistent judicial interpretation of the law, which is ensured by constraining judges to interpret statutes according to their literal meaning and by demanding consistency with the precedential decisions (the 'common law') of higher courts. As a consequence, the UK needed to qualify the Directive's goal of ensuring safety because legal literalism would otherwise have criminalized virtually every employer (HSE, 1989, p. 17). While the courts have some scope to avoid such absurd results, more qualified interpretations of the law would have been controversial if Parliament had removed the pre-existing SFAIRP qualification when transposing the Directive.

By contrast, statutes in civil law systems tend to take the form of general legal frameworks that set aspirational aims rather than unambiguous requirements (e.g. Huber, 2009; Rose-Ackerman and Perroud, 2013). The reason is that under separation of powers doctrines granting the legislature primacy over the courts, the law is expected to be sufficiently complete and clear so as not to demand interpretation by judges (Merryman, 1985, p. 29). Since that is rarely possible in practice, judges tend to interpret the spirit of the law, with legal consistency traditionally coming from the further elaboration of extensive codes and rules that give meaning to general statutes. Contrasts between common and civil law can be overstated, but one difference is that the French and German goal of safety has been defined more in terms of following specified rules rather than literally preventing harm, as evidenced by the historically non-judicable nature of their headline goals. By the same token, the Dutch qualified goal of safety is constrained by a rule-based tradition that makes it hard to do less or even do more (cf. Ale, 2005).

One important consequence of how these two legal traditions have addressed OHS is that they have favoured different balances between precision and flexibility in rule design. As Diver (1983) has observed, precise rules help ensure legal consistency but the problem of 'requisite variety' means that as rules become narrower so their number has to increase to match the variety of circumstances that they must meet. Flexible rules, by contrast, can cope

with a wide variety of unanticipated circumstances, but they must be accompanied by commonly held interpretative principles to ensure consistent application.

Understood in those terms, the introduction of the UK's qualified goal-based regime was not an attempt to reduce levels of regulatory protection as it might look from a VoC perspective, but a solution to the insufficient requisite variety of the prior prescriptive regime, which had failed to cover all sectors let alone workplace situations. By contrast, continental rule-based regimes have traditionally addressed the problem of requisite variety in their prescriptive regimes through, *inter alia*: creating more rules to meet more circumstances; creating rules that formally permit discretion; informal discretionary enforcement of the law; and firm-level implementation practices.

A second institutional variable shaping how regulatory decisions and trade-offs are rationalized concerns our countries' contrasting state traditions. The UK's outcome-oriented approach to OHS regulation demanded explicit acceptance of risk-cost-benefit rationalizations of the limits of employee protection and employer liability. Such rationalizations are familiar in the UK, which is unconstrained by any written constitution according individual rights that could conflict with utilitarian calculations of how to achieve optimal social welfare.

By contrast, while the socio-economic implications of OHS regulation are recognized in Germany and France, explicit cost-benefit rationalizations of regulatory decisions are resisted, not least because of conflicts with their more rights-based constitutional settings. Instead, rationalizations of decision-making in those countries focus more on procedural rather than outcome legitimacy. Thus in Germany, rules are rationalized as the outcome of negotiation amongst the social partners. Indeed, this approach is consistent with the German constitutional court's view that participation is the key instrument for individuals to defend their positive constitutional rights to protection (Grimm, 2005). The French republican tradition, by contrast, formally puts the state at the centre above special interests, so the Labour Code derives legitimacy from the state's leading procedural role subject to a constitutional emphasis on equality and individual rights.

The Netherlands sits somewhere between the UK and the other two countries. Utilitarian rationalizations are familiar in the Netherlands, not least evidenced by the OHS regime's qualified goal of safety. However, the character of the Dutch polity favours procedural solutions that are founded on agreement amongst the social partners. Thus while safety is regarded 'as a core government responsibility' as the 2010 Coalition Agreement (VVD-CDA, 2010, p. 51) stated, it is rather regarded as a means of preserving and reinforcing the social fabric of Dutch society than as an end in itself.

A third and final institutional variable shaping the character of cost-safety trade-offs follows from our identification of the complementary relationship between the organization of OHS regulation and welfare systems. In the UK and, largely the Netherlands, where regulation is decoupled from social insurance, accident prevention is only concerned with trading-off the *ex ante* costs of safety measures against gains in worker safety. Indeed, in the Netherlands soaring disability rates made this arrangement unstable and forced a degree of coupling between *ex ante* prevention and *ex post* compensation. In the dual systems of France and Germany, however, where regulation is closely coupled to social insurance, the *ex ante* costs of safety measures have to be traded off against not just against gains in worker safety but also the *ex post* costs of compensation. Indeed, while Germany and France like to portray the Anglo-Saxon practice of explicitly valuing life in regulation as a cultural

anathema, those countries effectively put a price on life through the preventative activities of their social insurance systems.

The different couplings between regulation and welfare regimes suggests a cleavage in what is at stake in OHS regulation that does not map easily onto VoC predictions of varied *ex ante* worker protection across our countries. That cleavage does, however, help explain the conflict at the ECJ over the UK's qualification of the Framework Directive's goal of ensuring safety. In the French and German context, ensuring safety is not just about avoiding accidents but is also about compensating workers—or their survivors—for occupational injuries and sickness. Indeed, it is perhaps significant that in French 'safety' translates as the rather broader concept of '*sécurité*', which encompasses aftercare and indemnification for lost earning potential as well as *ex ante* prevention. In that context, the EC was not so much complaining that the UK's qualified approach to safety was insufficiently focussed on prevention, but was rather anxious that it could undermine the founding principal of the continental no-fault liability approach to ensure *ex post* costs were always met. As the Advocate General Mengozzi (2007) made clear in his opinion for the ECJ, this was not an issue for the UK, because *ex post* costs are socialized through the welfare system and the NHS and further complemented by tort.

Those three variables, therefore, help explain why, despite stark differences in headline goals, the *stringency* of OHS regulatory protections does not significantly vary across our four countries and, therefore, unlike the *organization* of the regimes, appears to be independent of VoC. In that context, it is not entirely clear how much significance should be placed on the UK's consistently low-workplace fatality rates (see Figure 1), which seems counter-intuitive from a VoC perspective. If we were to speculate, we could point to the UK's singular regulatory focus on the prevention of accidents and ill-health compared to the broader focus of the French and German regimes on protecting the fund as much as the worker. We might also point to the UK's distinctive goal-based regulatory philosophy, which, by focusing attention on outcomes, overcame the problems of insufficient requisite variety that had plagued its prior rule-based approach. By contrast, our other countries have struggled to make a rules-based approach meet the needs of protecting workers in this complex regulatory domain; most notably evident in the French attempts to implement the Labour Code. Indeed, it may not be a coincidence that Dutch fatality rates improved soon after the Dutch handed rule-making to sectoral associations in 2007 to address the problem of requisite variety. However, given that this paper has focused more on the principles of regulatory design rather than the outcome for worker safety, it would be unwise to draw strong conclusions on the relative effectiveness of each system without careful empirical study.

6. Conclusions

In conclusion, our in-depth analysis of four advanced European countries found that VoC theory is a good predictor of the varied organization of their OHS regulatory regimes. We argue that finding can be partly explained by unsurprising isomorphic pressures that result in strong degrees of coherence between the organization of regulation and the dominant modes of coordination between firms and other actors in each country. However, we go further to argue that the varied organization of OHS regimes is not simply the result of isomorphism, but arises through much stronger and hitherto unremarked three-way institutional complementarities with those countries' welfare systems and modes of coordination.

However, contrary to a commonly held view in the VoC literature that workers are better protected in CMEs than LMEs, we found no such pattern for the stringency of OHS regulatory protections across our countries, despite the impression given by their regimes' strikingly varied headline goals. All the OHS regimes make trade-offs on safety, albeit varying in their explicitness, rationalizations and logics. Thus, where regulation is closely coupled to social insurance, negotiation over the prevention of accidents is tempered by concerns over financing compensation, treatment and rehabilitation. Where regulation and welfare regimes are decoupled then bargaining is just about accident prevention. The explicitness of those bargains and the way that they are rationalized are likewise shaped by the legal systems and state traditions within which they are immersed.

Further research is required to test the wider applicability of these findings. Extending the number of case-study countries would help establish the generalizability of the findings for OHS regulation. For example, the USA and Ireland would be good examples of LMEs as they share a common law heritage but have different state traditions and couplings between OHS regulation and welfare regimes. Extending the study to other policy domains would help establish the relevance of our findings for regulation more widely, but care would obviously need to be taken when interpreting the relevance of cases where the regulated activity may have little to do with relationships between firms and other actors.

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