BJIR An International Journal of Employment Relations LSE

British Journal of Industrial Relations doi: 10.1111/bjir.12003
51:3 September 2013 0007–1080 pp. 519–552

Complements or Substitutes? Private Codes, State Regulation and the Enforcement of Labour Standards in Global Supply Chains[1]

Richard M. Locke, Ben A. Rissing and Timea Pal

Abstract

Recent research on regulation and governance suggests that a mixture of public and private interventions is necessary to improve working conditions and environmental standards within global supply chains. Yet less attention has been directed to how these different forms of regulation interact in practice. The form of these interactions is investigated through a contextualized comparison of suppliers producing for Hewlett-Packard, one of the world's leading global electronics firms. Using a unique dataset describing Hewlett-Packard's supplier audits over time, coupled with qualitative fieldwork at a matched pair of suppliers in Mexico and the Czech Republic, this study shows how private and public regulation can interact in different ways — sometimes as complements; other times as substitutes — depending upon both the national contexts and the specific issues being addressed. Results from our analysis show that private interventions do not exist within a vacuum, but rather these efforts to enforce labour and environmental standards are affected by state and non-governmental actors.

1. Introduction

The fragmentation and geographical dispersion of production is one of the hallmarks of the current era of globalization. This transformation in the locus and organization of global production has created both opportunities and challenges for developing countries. On the one hand, contract manufacturers embedded in global supply chains generate employment and tax revenues for their developing country hosts. On the other hand, low margins

Richard M. Locke, Ben A. Rissing and Timea Pal are at the Massachusetts Institute of Technology.

and stiff competition among many of these manufacturers have led to poor working conditions and lax environmental standards in the facilities producing for global brands (Connor and Dent 2006; Overeem 2009; Pruett 2005; Verite 2004). This has spurred a growing debate among policy makers and scholars alike over how best to improve working conditions and environmental practices in these new, globally dispersed production networks.

To address these questions, scholars have turned their attention to private voluntary regulatory systems implemented by multinational corporations and labour-oriented non-governmental organizations (NGOs) (O'Rourke 2002; Seidman 2007), or to state regulation and the enforcement of national labour and environmental laws (Piore and Schrank 2008; Pires 2008). Although developing countries often appear to possess strong laws on their books, in practice many of these states lack the ability (Baccaro 2001; Elliott and Freeman 2003; Estache and Wren-Lewis 2008; Laffont and Tirole 1993) or willingness (Bhagwati 1995) to enforce their national laws. In the absence of strong national enforcement, a range of private regulatory efforts (i.e. codes of conduct, monitoring programmes, certification schemes, etc.) have emerged to address labour and environmental issues within global supply chains in a diverse array of industries. Yet, to date, there is little evidence to suggest that these private initiatives in and of themselves lead to significant and sustained improvements in labour and environmental standards (Locke *et al*. 2007a, 2009). More recent research has suggested that neither state regulation nor private voluntary regulation functions effectively in isolation, and thus a combination of private and public interventions is necessary to effectively tackle these issues (Bartley 2011; Haufler 2001; Kolben 2007; Locke *et al*. 2007b; Pessoa 2006; Trubek and Trubek 2007; Utting 2005; Weil 2005). Yet to simply stress the importance of (potentially) complementary interventions and public–private partnerships fails to account for how these alternative forms of regulation actually interact on the ground. As Bartley (2011) and Trubek and Trubek (2007) have shown, under certain conditions, these alternative approaches to regulation can either complement one another, or contradict, and thus compromise the effectiveness of each other, resulting in significantly different results for workers and their communities.

This article examines how private and public forms of regulation interact through a contextualized comparison (Locke and Thelen 1995) of remediation efforts at two major electronics suppliers located in both Mexico and the Czech Republic. We compare how distinctive features and unique solutions both across and within national settings affect the improvement (or not) of specific labour and environmental issues. We argue that to truly understand how these alternative approaches to labour and environmental standards enforcement interact, we cannot adopt a macro-level perspective but must instead examine the processes through which specific issues are addressed on the ground within and across national settings. When examining efforts to enforce labour and environmental standards through this more issue-focused approach, we observe outcomes that arise from either complementary or

supplementary interactions between national regulatory agencies and private forms of voluntary regulation. We find that the relevance of any particular regulatory approach varies by issues (such as the utilization of agency workers or the regulation of environmental pollution) and national settings (Mexico and the Czech Republic).

This more micro-level approach to the study of labour and environmental standards has significant implications for debates surrounding the effectiveness of both national regulatory efforts and corporate codes of conduct. We illustrate this argument through a case study of Hewlett-Packard (HP) and its suppliers.

2. Data and methods

This article draws upon a unique dataset of supplier audits that HP selectively administered to its network of global suppliers from 2003 through 2009. These audits assess supplier compliance with the Electronics Industry Code of Conduct (EICC), which is discussed in-depth below. Audits are conducted by HP employees who are explicitly trained to evaluate suppliers' compliance with the EICC. Audits are performed on-site at supplier facilities, and a subset of audit reports is verified by an external organization to ensure legitimacy and accuracy of assessments. Our sample of HP supplier audits describes 276 unique facilities, 137 of which received multiple audits. Of the 276 facilities in our dataset, only seven complied fully with all the requirements included in the HP Code of Conduct at the time of their last audit, which generally occurred in 2008 or 2009. Summary data describing the aggregate supplier audit scores by issue and by world region can be found in Table 1.[2]

To increase our confidence in the supplier audit records collected by HP, we conducted qualitative field research in several countries (China, Mexico, Czech Republic, Hungary, Thailand, Malaysia and Singapore).[3] The core of this article focuses on a pair of matched case studies examining two electronics suppliers in Mexico and the Czech Republic. This fieldwork involved over 70 interviews with HP managers, owners of supply chain factories, plant managers, production managers, HR managers, Environment, Health and Safety (EHS) representatives, and line supervisors. Interview access to suppliers was negotiated through support from HP. While we were able to interview managers (in different functions) at various suppliers, we chose not to interview factory line workers at these same suppliers because we could not guarantee that these workers would not be subsequently punished for sharing information. Given our concerns for these 'human subjects', we chose to forego this very important source of information. We did, however, assess working conditions through our own on-site visits to the factories, seek out external NGO assessments of conditions, and learn about workers' views through our interviews with various labour rights-oriented NGOs in both Mexico and the Czech Republic.[4]

TABLE 1
Distribution of Fully Compliant Facilities (Last Audit) by National Setting and Issue

	Asia Pacific		*CE Europe*		*Greater China*		*Latin America*	
	Total facilities	*Per cent of total*	*Total facilities*	*Per cent of total*	*Total facilities*	*Per cent of total*	*Total facilities*	*Per cent of total*
All sections (full compliance)	4	6.06	1	4.00	1	0.67	1	2.78
All sections (no major violation)	21	31.82	9	36.00	2	1.34	13	36.11
Labour (full compliance)	34	51.52	22	88.00	8	5.37	9	25.00
Labour (no major violation)	42	63.64	23	92.00	16	10.74	26	72.22
Health and safety (full)	20	30.30	5	20.00	4	2.68	11	30.56
Health and safety (no major violation)	46	69.70	17	68.00	36	24.16	18	50.00
Environment (full compliance)	26	39.39	12	48.00	14	9.40	14	38.89
Environment (no major violations)	47	71.21	21	84.00	62	41.61	22	61.11
Labour management system (full compliance)	26	39.39	14	56.00	17	11.41	5	13.89
Labour management system (no major violations)	57	86.36	23	92.00	110	73.83	26	72.22
H&S management system (full compliance)	22	33.33	8	32.00	36	24.16	12	33.33
H&S management system (no major violations)	55	83.33	23	92.00	119	79.87	30	83.33
Total	66	100	25	100	149	100	36	100

In keeping with a non-disclosure agreement negotiated with HP, the comments of supplier employees have been kept strictly anonymous. For the same reasons, we provide no identifying information pertaining to the suppliers interviewed for this work. Academic research, industry reports and conversations with local experts were utilized to identify any active NGOs in both the Mexico and the Czech Republic electronics industries.[5]

3. Private compliance programmes: a critical review of the debates

Codes of conduct and efforts aimed at monitoring compliance with these codes have a long history. Whereas initially these efforts focused primarily on corporate compliance with national regulations overseeing various business practices (i.e. preventing corruption), over time, monitoring efforts have become increasingly directed at compliance with private, voluntary codes of conduct, especially as they apply to labour, health and safety, and environmental standards.[6] Responding to pressures in the 1990s from consumer groups and labour rights NGOs, numerous global corporations developed their own private codes of conduct and monitoring mechanisms aimed at enforcing compliance to these codes.

Critics of private compliance programmes argue that they displace government and union interventions, and are designed *not* to protect labour rights or improve working conditions, but rather to limit the legal liability of global brands and prevent damage to their reputations.[7] Others, however, argue that private voluntary self-regulation is not an attempt to undermine the state, but rather an appropriately flexible response to the reality of global production networks and the low capacity of developing country states to fully enforce labour laws and regulations (Nadvi and Waltring 2004; Ruggie 2003; Vogel 2008). According to this second group, *under certain conditions*, the compliance efforts of brands, multi-stakeholder initiatives and NGOs can work to strengthen government enforcement of national laws, particularly when states lack the capacity or the resources to carry out systematic factory inspections (Bartley 2005; Fung *et al*. 2001; O'Rourke 2002; Rodriguez-Garavito 2005).

A related debate concerns the growing number and diversity of private codes of conduct and auditing protocols, as well as the uneven quality[8] of the audits being performed. A 2003 World Bank study estimated that over 1,000 corporate codes of conduct existed in that year (Smith and Feldman 2003: 2). More recent estimates are difficult to find, but the numbers of firms with their own code of conduct must certainly have grown.[9] The diversity of codes and monitoring schemes being applied to global suppliers is well documented (Brown 2005; Jenkins 2001; O'Rourke 2002). Underlying these different codes and implementation systems are very different principles and goals. Whereas some codes emphasize freedom of association and anti-discrimination policies, others instead focus on 'living' (as opposed to minimum) wages, 'excessive' work hours, and health and safety issues. It is

possible that lead firms may be more motivated to oversee and enforce select aspects of these codes. Some codes are monitored by internal, company staff, while others are audited by third-party, external consultants or NGOs. Many suppliers have to implement multiple codes of conduct, which causes redundancies and confusion. Some factories complain of 'monitoring fatigue', given that they are monitored multiple times a year on behalf of each of the global brands they work for. In addition, suppliers complain of being placed in 'compliance limbo' between different and conflicting code requirements.

Critics of private compliance programmes point to these factors as further proof of the ineffectiveness of codes of conduct/monitoring programmes and their inability to ever fully substitute for state regulation. To address these concerns, this article focuses on lead electronics firms that share the same code of conduct, auditing protocol and increasingly the same auditors.[10] As we will see below, through the EICC, electronics suppliers are audited for common issues, with uniform methodologies and auditing staff that receives consistent training.

In short, private compliance programmes vary tremendously in terms of the issues being investigated (wages, work hours, working conditions, child labour, freedom of association, health and safety issues, sexual harassment, and so on), the methodology being employed to collect information (e.g. interviews — with or without workers, on-site or away from the factory — documents, observations), the level of skill or experience or independence of the monitors, and how the information collected through factory audits is being reported and disseminated (Jenkins 2001; O'Rourke 2002). Given this marked diversity in the design and implementation of private compliance programmes, the room for controversy over whether or not these programmes are accurate, thorough, let alone effective, is enormous. Yet, as we report below, labour and environmental standards are being enforced through unique exchanges between private and public actors.

4. The global electronics industry

The global electronics industry[11] is one of the largest and fastest growing manufacturing sectors, characterized by disaggregated production networks involving numerous suppliers located throughout the globe (UNCTD 2004). In the late 1980s, leading electronics firms transitioned away from vertically integrated production structures to a new model of outsourced manufacturing, opting to concentrate almost exclusively on discrete competencies that rarely involved production. The vast majority of leading US electronics firms, including IBM, Nortel, Apple, 3Com, HP, Maxtor and Lucent, followed this trend during these years (Gereffi *et al*. 2005; Sturgeon 2002). Many of these firms divested their manufacturing and production facilities during this period, resulting in the rapid growth of contract manufacturers. Much of this growth was concentrated among a small number of companies — most notably Flextronics, Celestica, Sanmina, Jabil and Foxconn. By 2000,

leading contract manufacturers had production facilities in as many as 70 countries, with the bulk of manufacturing activities occurring in two or three regions in the developing world (Ernst 2004; Lüthje 2002).

The global electronics industry today is highly concentrated with a bifurcated structure involving a small number of international buyers and suppliers that control much of the market (Sturgeon and Lester 2003). Table 2 presents revenue, gross profit and employment data for the leading electronics and contract manufacturing firms. Companies selling branded hardware largely control the industry's product definition, design and innovation trajectories, and thus continue to capture value associated with high-end markets and new technologies (Linden *et al.* 2009; Sturgeon 2002). There is, however, some evidence that this dynamic may be changing. Table 2 indicates that electronics suppliers, such as Foxconn and Flextronics, rival electronics lead firms, such as HP, Apple or IBM, in terms of revenue and employment. Moreover, several large and internationally diverse suppliers, such as Acer (2011 revenue of $16.2 billion with 7,757 employees), have recently begun to establish their own computer hardware brands. Notwithstanding these recent developments, much of the profit continues to be captured by branded lead firms rather than the suppliers responsible for production activities. While the five electronics lead firms presented in Table 2 collectively produced 2011 gross profits of $157.4 billion, the industry's top five suppliers collectively achieved profits of $5.3 billion.

Fluctuating market demand and shorter product life-cycles have produced a volatile manufacturing environment within the electronics sector (for a detailed review of risk factors specific to the electronics industry, see Sodhi

TABLE 2
Top Electronics Lead Firms and Suppliers by Revenue

Rank	*Firm*	*2011 Total revenue (in billions of USD)*	*2011 gross profit (in billions of USD)*[a]	*Employees*
Electronics firms producing computer hardware				
1	Hewlett-Packard	$127.2	$29.7	324,600
2	Apple	$108.3	$43.8	60,400
3	IBM	$106.5	$46.0	426,751
4	Dell	$61.7	$11.4	100,300
5	Cisco	$43.7	$26.5	63,465
Electronics suppliers				
1	Foxconn	$111.1	$2.2	920,000
2	Flextronics	$30.3	$1.6	200,000
3	Jabil Circuit	$16.8	$1.25	100,000
4	Celestica	$7.3	$0.1	35,000
5	Sanmina-SCI	$6.6	$0.1	48,000

[a] The 2011 revenue and profit statistics are annual data, although it should be noted that company income statements report revenues as of different end periods in 2011. For the companies presented above, 2011 revenue and profit reflect annual data as of the following dates: September 24 (Apple), September 30 (Celestica, Flextronics, Foxconn, IBM), October 1 (Sanmina-SCI), October 28 (Dell), October 29 (Cisco), October 31 (Hewlett-Packard) and November 30 (Jabil).

and Lee 2007). Consistent advances in technology have led to the rapid obsolescence of consumer electronics (Byster and Smith 2006). According to one executive at Dell Computers, '[i]nventory has the shelf life of lettuce' (Catholic Agency for Overseas Development (CAFOD) 2004). Typical electronic consumer products have 9- to 18-month life-cycles, with initial production volumes spiking at 300 per cent the average volume over the product's full production run (Burruss and Kuettner 2002).

In response to variable demand and intense cost pressures, contract manufacturers have adopted flexible employment policies. These work relationships are characterized by low wages with variable pay, precarious or temporary work, and high concentrations of women, minority and migrant employees (CAFOD 2004; Chan and Peyer 2008; Smith *et al*. 2006). Additionally, many contract manufacturers have elected to externalize large portions of their workforce so as to limit worker overhead costs, and to enable suppliers to hire and fire employees rapidly in response to variations in production demand. A representative from the electronics supplier Foxconn went as far to say that '[Foxconn] believes that it would be better to hire all workers directly; unfortunately our variable manufacturing volumes do not allow us to do it' (Centre for Reflection and Action on Labour Issues (CEREAL) 2007). The widespread use of temporary contract workers also prevents many electronics industry workers from exercising their basic right of freedom of association. Organizing workers is challenging as electronics suppliers frequently engage multiple staffing agencies to provide them with assembly workers, which introduces great co-ordination challenges for union organizers. Agency workers seeking to organize can also easily be dismissed due to their short-duration contracts. As a result, traditional forms of worker representation are largely absent from the global electronics industry, notwithstanding recent and growing concerns pertaining to labour rights and working conditions in the industry.

These structural characteristics of low-skilled manufacturing and assembly work in the electronics industry have led to labour rights issues surrounding working hours, benefits and safety, in addition to concerns surrounding the environmental impact of production activities (Good Electronics 2009; Overeem 2009; Smith *et al*. 2006; Stichting Onderzoek Multinationale Ondernemingen (SOMO) 2009). The harsh working conditions in the electronics industry were most vividly manifest by the tragic worker suicides that began in 2010 within Chinese electronics facilities owned by Foxconn and producing for Apple (Ngai and Chan 2012). These suicides rallied coalitions of investors and NGOs (Interfaith Center on Corporate Responsibility 2010) to condemn abusive workplace conditions in the industry and call for stricter oversight. In 2012, Apple agreed to allow the Fair Labor Association (FLA) to examine the working conditions at its Chinese suppliers, including the aforementioned Foxconn facilities (FLA 2012; The Economist 2010, 2012). The FLA identified more than 50 issues that violated Chinese labour law and/or the FLA's code of conduct as they pertain to working hours, compensation, and health and safety issues, among others.[12] Apple and Foxconn

have made efforts to address these issues in response to NGO and public scrutiny, which have included several recent wage increases and the hiring of additional assembly workers (Worstall 2012).

Another major source of concern with respect to the global electronics industry refers to the environmental risks associated with product manufacturing and e-waste (Smith *et al*. 2006). Electronic products are manufactured and assembled using more than a thousand toxic materials. Since most manufacturing take place in emerging markets with weak environmental regulation, the laws and administrative rules on books often fail to monitor these potential risks in an effective manner.

In response to these conditions, HP and other electronics lead firms launched corporate social and environmental responsibility (SER) programmes in the late 1990s. Moreover, prominent lead firms, such as HP, Dell and IBM, were able to initiate a collaborative approach to monitoring supplier conduct through the establishment of the Electronics Industry Citizenship Coalition and Code of Conduct (both commonly referred to as the EICC).

5. HP

HP is a leading electronics firm with a globally dispersed supply base and a strong commitment to SER. In fiscal year 2010, HP shipped in excess of 64 million personal computers and employed approximately 325,000 individuals in 170 countries. HP has four operating divisions: Imaging and Printing, Personal Systems Group, Enterprise Business, and Financial Services. During fiscal year 2010, HP operated in over 170 countries, contracting with approximately 1,000 suppliers in over 1,200 locations. These suppliers provide product materials and components, in addition to manufacturing and distribution services. Most suppliers for HP are located in developing countries in four main geographical regions: Asia Pacific, Central and Eastern Europe, Greater China, and Latin America.

Established in 1939, HP has been committed to social and environmental issues throughout its history. The 'HP Way' refers to a management philosophy that emphasizes integrity, respect for individuals, teamwork, innovation and contribution to customers and the community (Packard 2006). Although HP has a history of union avoidance at its facilities, it has exhibited a strong and long-standing commitment to other aspects of SER.[13] Consistent with this culture, HP became an early advocate of global labour standards. For instance, in the late 1990s, HP relocated printer-manufacturing activities that were previously based in Vancouver, Washington, to outsourced production locations overseas; as HP engineers supervised this transition, they became aware of the consistently poor working conditions and absence of labour standards within select supply chain partners. During one supplier visit, these engineers took multiple photographs surreptitiously, which they then assembled into an album and distributed internally within the company. In 2002, the company developed its first supplier code of conduct in response to

both this internal mobilization, and to external pressures from NGOs and other civil society groups concerned about labour conditions in the industry. This was the first code of conduct in the electronics industry and provided an important foundation for the industry-wide standards that were later established through the Electronics Industry Citizens Coalition.

6. The EICC

The Electronics Industry Citizenship Coalition (EICC) was established in 2004 when eight leading electronics firms, including HP, sought to improve the working conditions and environmental impacts of their suppliers through the development of an industry-wide code of conduct. By 2008, EICC membership had grown to include 45 firms, with a collective 1.2 trillion in revenue and employing 3.4 million workers (EICC 2009). EICC-affiliated firms require their suppliers (and in some cases, their own facilities) to comply with the EICC code. The first EICC code was developed in 2004, and has since been revised three times, the most recent revision occurring in 2011. Although the code was initially implemented more or less independently by each member of the EICC, firms affiliated with the EICC have made significant progress over time to co-ordinate their efforts by moving towards a common pool of auditors and by sharing audit results in an effort to reduce audit fatigue among suppliers and eliminate conflicting standards, two issues that often hamper private monitoring efforts (Locke *et al*. 2007a; Nadvi and Waltring 2004; O'Rourke 2002).

The code is divided into seven sections; the first covers a broad code of conduct compliance issues, and is followed by six more specific sections addressing labour, health, the environment, labour management, environmental health and safety management, and ethics. Audits across suppliers and national settings are based on an evaluation of 53 EICC items that are independently assessed for compliance outcomes, and first-time audits usually take two days to complete. Depending on severity, issues may be flagged as a 'major violation', 'minor violation' or 'observation'. A major violation (also referred to as nonconformance) refers to the inability of a supplier's management system to comply with a core EICC standard. Select major nonconformances can also be denoted as zero tolerance items. Such issues include the utilization of underage workers, forced labour, health and safety issues posing immediate danger or serious injury, and violation of environmental laws posing serious and immediate harm to the community. Minor violations refer to more isolated concerns, such as a temporarily blocked emergency exit or missing safety equipment. Finally, observations are generally a recognition that a superior means of documenting or monitoring a process or procedure may exist. Audit items flagged as observations are not considered a code nonconformance.

For this research project, HP shared their internal audit data containing both quantitative compliance data and qualitative evaluations, gleaned from

on-site evaluations of 276 globally dispersed suppliers from 2003 through 2009. An analysis of HP's internal audit reports shows that most of HP's suppliers have several nonconformances with the code, even after HP's SER programme had been implemented for several years. Auditors' records suggest a significant variation in the frequency and magnitude of code violations across geographic regions (see Table 1).

These findings raise important questions regarding the conditions that are necessary to facilitate compliance with private voluntary codes of conduct in general, and HP's code of conduct in particular. HP's global supply chain represents a unique setting through which to examine the efficacy of voluntary private regulation. Not only does the global electronics industry represent an important sector for several developing economies, but also HP has been a consistent and outspoken voice for responsible labour and environmental practices throughout the industry. Moreover, rather than focusing exclusively on monitoring and compliance, HP has developed specific 'capability building' programmes aimed at providing suppliers with the technical know-how and management systems necessary to address the root causes of various labour issues. Yet, even within HP's supply chain, we see persistent problems with working conditions, work hours and environmental standards.

7. HP suppliers: 'Alpha' and 'Beta' Electronics[14]

Among HP's network of global suppliers, this article contrasts two of the firm's major suppliers, 'Alpha Electronics' and 'Beta Electronics', through a matched analysis of these suppliers in the Czech Republic and Mexico. Both suppliers are industry leaders, with operations in several countries, strong brand reputations and many clients including HP. In both Mexico and the Czech Republic, we compare facilities owned by these two manufacturers that contract with HP to perform similar functional roles: desktop assembly and repair work. The Alpha Electronics plant that we visited in Mexico produces products exclusively for HP, while the other three Alpha and Beta facilities that we studied produce goods for multiple clients. As a result, the operations of Alpha and Beta Electronics are affected by multiple simultaneous codes of conduct from a variety of clients. This said, HP was a first mover in terms of SER in the electronics industry, and its code formed the basis for the industry's (EICC) code. As one Beta representative stated during an interview, 'almost all customers require the same or similar standards'. As a result, concerns that other clients' codes of conduct may affect key labour or environmental outcomes pertaining to HP production lines should be minimized in this setting.

In this article, we analyse the ways these facilities, owned by different suppliers and operating in two different countries, address similar labour and environmental issues. By controlling for the same contract manufacturers performing the same tasks for the same lead firm (HP) but operating in

different national settings, we seek to elucidate the processes through which systems of private and state regulation interact to redress various labour and environmental problems. This structured comparison also helps us control for various factors — audit content, buyer–supplier relations, national socioeconomic and regulatory environment, and the particular labour and environmental standards being addressed — that may shape the outcomes described in this article. Further, external assessments of HP's efforts to improve labour and environmental conditions in general (de Haan and Schipper 2009; Greenpeace 2011: 1–3; van Dijk and Schipper 2007), and specifically within Mexico (CEREAL 2007: 81, 2009: 29, 2011: 32) and the Czech Republic (Danish Commerce and Companies Agency 2008; SOMO 2009), provide evidence that any observed improvements within suppliers are the result of genuine efforts rather than instances of auditor/supplier deception.

Alpha and Beta are suppliers of strategic importance for HP. Alpha is one of the largest manufacturers of electronics and computer components worldwide. In recent years, Alpha has established manufacturing plants in the United Kingdom, the United States, the Czech Republic, Hungary, Mexico, Brazil, India and Vietnam, employing just under half a million workers in 2009. As a member of the EICC, Alpha has an internal SER committee to proactively work with stakeholders, including customers and NGOs. As a result of this committee's work, the company has dedicated significant resources and implemented a wide range of initiatives to improve the performance of its facilities across a variety of issues.

Beta is an electronics manufacturing service provider with manufacturing operations in over 30 countries. Also a member of the EICC, Beta has built upon principles, policies and standards prescribed by the EICC to implement its own corporate responsibility programme. Internally, Beta has developed self-assessment tools and audit processes that are being deployed throughout all Beta sites and vertically down to its own supply base. These efforts enable Beta to engage in timely corrective actions to ensure continuous conformance to both internal and external (i.e. HP-mandated) corporate citizenship requirements.

8. Improving labour and environmental conditions in the Czech Republic and Mexico: a contextualized comparison

The implementation of the EICC through HP's SER programme, and the improvements it generated, played out very differently in Mexico and the Czech Republic. While the content of the code and the rules regarding its implementation are uniform across all countries, differences in national context shaped the processes by which labour and environmental standards were enforced among HP suppliers. To illustrate this, we examine two distinct national settings and illustrate the different processes that led to improvements surrounding two very different issues of substantive

importance within this industry: conditions surrounding the utilization of agency workers and environmental pollution.

As discussed earlier, we argue that interactions between private and public regulatory systems can take different forms. Complementary interactions emerge when private compliance initiatives exist alongside active state enforcement efforts. In these settings, private compliance efforts are often focused on informing local suppliers about national labour/environmental laws and helping them comply with existing regulations, with the understanding that failure to comply with these laws and regulations will lead to sanctions by the relevant government authorities. Active state regulatory efforts are, therefore, bolstered (not undermined) through these additional private initiatives.

In contrast, substitution occurs when private enforcement efforts intervene to address labour and environmental issues that are not being fully enforced by weak or ineffective government regulatory authorities. In these settings, private compliance initiatives rely upon national laws to legitimate their activities, but otherwise operate more or less independently and with little explicit co-ordination with government regulatory agencies.[15]

Our matched analysis illustrates how the balance between private and public regulation, as well as the mode of interaction between them, depends upon the relative capabilities and strategies of public regulatory authorities in different nation-states. Moreover, we show how issue-specific improvements are brought about through very different interactions between state and private enforcement efforts.

9. Promoting fair employment conditions for agency workers

In recent years, electronics suppliers have increasingly relied on temporary employment agencies to meet their manufacturing staffing needs. This practice involves the externalization of the employment relationship, in which workers at a manufacturing plant are formally employed by a separate and distinct staffing agency. Through the use of agency workers, manufacturers can maintain greater workforce flexibility, although this practice can lead to abuses surrounding working conditions and compensation practices for these 'external' employees. The global electronics industry relies extensively on the use of agency workers, and this form of employment has repeatedly been associated with low pay and precarious working conditions throughout the supply chain (Brown 2009; MakeITfair 2009). In Mexico, an estimated 60 per cent of employment in the electronics industry comprises agency workers, with some 240,000 workers employed by more than 60 agencies (Brown 2009; CEREAL 2007, 2009). Many Mexican electronics suppliers hire agency workers on multiple sequential short-term contracts so that workers fail to accumulate employment benefits afforded to full-time workers, as described in the national labour code. Contracting with employees in this fashion is illegal in Mexico; however, this practice has been utilized routinely in the

country's electronics industry (CEREAL 2007). More than 80 per cent of Mexican agency workers are employed for less than a year, which suggests that very few accrue the nationally mandated benefits that they would otherwise be entitled to as full-time workers (Partida 2004).

Reliance on agency workers has increased significantly in recent years in the Czech Republic as well (CIETT 2009). At the end of 2009, there were 2,212 registered temporary work agencies in the Czech Republic, with the largest share of temporary workers employed in industrial sectors with high shares of foreign capital, including the automotive and electronics industries (Aleinik 2010; European Industrial Relations Observatory (EIRO) 2009). Sixty per cent of the agency workers in the Czech Republic are employed for a time period shorter than three months (CIETT 2009). Concerns surrounding equitable pay and fair benefits are significant issues affecting agency workforces in both countries.

10. The national regulatory frameworks affecting agency work in the Czech Republic and Mexico

National labour legislation in Mexico, which has remained largely unchanged since 1970, offers few protections to temporary agency workers. In contrast, revisions to the Czech Republic labour laws in 2004 specifically address issues pertaining to the working conditions and compensation of these externalized employees. In Mexico, national labour law has remained largely inert for decades and is rarely enforced. Mexican law does allow for part-time positions (under a very narrow set of circumstances) and provide substantial employment protections to safeguard full-time workers, including year-end bonuses and a three-month severance payment (see Article 35 of the Mexican Federal Labor Law).[16] However, these protectionist laws are, in practice, bypassed by many electronics firms, limiting the ability of workers to protect their wages and benefits. One strategy utilized by electronics suppliers has been to hire employees on short-term contracts with explicit end dates. By avoiding full-time employment contracts, these workers are generally ineligible for many federally mandated benefits, such as year-end bonuses or severance payments. The use of agency workers has, therefore, developed in the shadow of the law taking advantage of vague reporting structures, legal loopholes and inadequate enforcement of national legislation. The full details of these working relationships are rarely disclosed to the Mexican labour authorities. One general manager we interviewed in Mexico described the employment of agency workers as both 'legal and illegal', depending on one's point of view.

Legislation pertaining to temporary employees in the Czech Republic was updated in late 2004 (and enacted in early 2005) to extend specific employment provisions to agency workers. Under these reformed laws, agency workers are entitled to employment conditions and compensation comparable to that offered to full-time employees.[17] Should suppliers be found in

violation of these equal compensation/employment condition clauses, they must retroactively pay agency workers the differences they are due. Additionally, identical provisions with regard to sick pay and pension benefits extend to both agency workers and full-time employees. Fewer legal provisions are provided to temporary employees who work for fewer than 100 hours in a given year (Coe *et al.* 2008; Ward *et al.* 2005). Finally, agency workers' employment in excess of 12 months is strictly regulated, and restrictions exist on the hiring of agency workers to replace permanent employees on strike (European Foundation for the Improvement of Living and Working Conditions 2006). The Czech Republic State Labour Inspection Office performed 11,673 inspections of employers and entrepreneurs in 2005, increasing to 12,845 inspections in 2008. During this time, firms violating employment laws could be subject to fines of up to 2,000,000 CZK. In 2006, 810 organizations were fined for a total of 17,692,500 CZK; two years later, penalties were imposed on 2,196 organizations, totalling 78,124,500 CZK (Ministry of Labour and Social Affairs of the Czech Republic 2009: 22–3). Further, new 2012 legislation has increased the maximum financial penalty associated with agency employment (švarc systém) violations to 10,000,000 CZK, and the Czech Labor Inspectorate has increased its inspection staff from 327 in 2009 to approximately 400, in anticipation of increased 2012 inspection activity targeting illegal employment issues (Audesová and Plešková 2011: 6).

Outdated and poorly enforced (in the case of Mexico), and recently revised and more stringent (in the case of the Czech Republic), labour regulation concerning agency work has led to very different regulatory contexts in these two countries. How labour standards are enforced — and especially the role that private compliance initiatives play in this process — illustrates the different ways that private and public regulation are layered together in Mexico and the Czech Republic.

11. Agency work issues at the plant level

Plant-level data in our study confirmed that agency workers are indeed vulnerable in both national contexts. Moreover, it should be noted that the EICC does not explicitly address the issue of agency work in its code of conduct, but rather evaluates the treatment of workers regardless of whether they are employed directly by the supplier or by a staffing agency used by the supplier. While the EICC lacks provisions for agency workers, a large number of the labour violations identified through HP's audits referred to this group of workers. These violations generally concerned agency workers' wages, benefits and working hours.

In the Czech Republic, both the Alpha and Beta facilities rely extensively on agency workers. Employees hired through three agencies represent approximately 40 per cent of the total workforce at Alpha and Beta plants. In 2007, HP audits revealed that agency workers at the Czech Republic Alpha

facility were compensated only at the standard hourly rate for weekday overtime and weekend work, rather than receive a 25 per cent salary premium in accordance with the Czech Labor Code. While this issue was corrected, agency worker overtime compensation was still lower than that of core employees — 70 Czech Crowns (approximately $3.85) instead of 75 (approximately $4.10). Moreover, evidence emerged that agency workers at both of these facilities were not included in performance-based pay systems on an equal basis with permanent employees.

Alpha and Beta Electronics facilities in Mexico both made extensive use of temporary workers from multiple agencies. Alpha electronics operates out of a manufacturing facility leased from HP. Alpha, in turn, outsources the majority of its rank-and-file employees through external staffing agencies. As of 2009, only the facility's managers, supervisors and administrators were full-time employees. The remaining 75 per cent of the facility's staff, all technicians, engineers and operators, were agency workers. The Beta Electronics facility in Guadalajara also made significant use of agency workers, hiring more than 3,000 temporary workers from four different staffing agencies. Contract workers at Beta were also employed in the firm's cafeteria services, security and maintenance operations.

A review of HP's audit records and several annual NGO reports indicates that Alpha and Beta experienced real issues surrounding the hiring, compensation and training of agency workers. At Alpha's facility in Guadalajara, Mexico, temporary employees hired through staffing agencies experienced discriminatory hiring practices, including being subjected to required pre-employment pregnancy tests. Interviews conducted in 2006 by the NGO CEREAL indicated that agency workers at Alpha Electronics in Guadalajara were being concurrently fired and hired on short-term, 15-day contracts in an effort to limit their tenure, and subsequently full-time employee benefit eligibility. HP audits of both Alpha and Beta similarly found that, while both firms had supplied their agency workforce organizations with a copy of the EICC, neither had a system in place to ensure that the temporary staffing agencies that supplied their assembly line workers conformed to the code. A summary of these plant-level agency work issues in Mexico and the Czech Republic can be found in Table 3.

In both Mexico and the Czech Republic, the quantity of EICC audit violations that involved agency workers declined significantly over time between 2005 and 2009, with no violations identified at the time of the most recent HP audits. These improvements at the Czech and Mexican facilities, however, were achieved through divergent pathways, shaped by the particularities of the institutional context in which these facilities were embedded.

12. Institutional interactions and divergent pathways to improvements for agency workers

Improvements in Mexico and the Czech Republic occurred through divergent pathways, involving alternative modes of interaction between private

TABLE 3
Plant-Level Agency Work Issues

	Alpha	*Beta*	*Improvement Process*
Mexico	• Discriminatory agency worker hiring practices • Agency workers fired and hired on 15-day contracts, preventing benefit accrual • No system to ensure that agency firms upheld EICC	• No system to ensure that agency firms upheld EICC	• Substitution: Private regulatory efforts by HP and local NGOs addressed labour issues not fully enforced by weak or ineffective government regulatory authorities. Through 'the Accord', NGO CEREAL negotiated labour disputes outside of the Mexican courts
Czech Republic	• Agency workers did not receive overtime pay • Agency workers did not receive equivalent performance-based pay to full-time employees	• No system to ensure that agency firms upheld EICC	• Complements: Labour issues identified through private regulatory efforts. HP's request to resolve these were legitimated by existing public labour regulations

and public regulatory efforts. In Mexico, private actors — which included HP, its suppliers, local business associations and labour rights NGOs — developed a set of practices and institutional arrangements that substituted for ineffective government regulation. In the Czech Republic, private regulatory efforts were legitimated by national laws, and thereby complemented public regulatory initiatives.

Improvements in Mexico through Private Substitution of Ineffective Public Regulation

Through the initiatives of multiple Mexican NGOs and HP, there have been both immediate improvements in the treatment of agency workers, as well as the creation of several long-term initiatives designed to prevent the future abuse of workers in these temporary and contingent employment relationships. Initial improvements were achieved through HP's audits of Alpha and Beta facilities. At Alpha, HP objected to the use of pregnancy testing of new employees by the supplier's staffing agencies. Alpha, in turn, requested that its staffing agencies discontinue these practices, and they were subsequently abandoned in December of 2005. Similarly, at both Alpha and Beta, pressure from HP led both suppliers to implement an auditing process of their respective staffing agencies to ensure that these firms met necessary SER requirements within the EICC code. In response to the fundamental concerns surrounding temporary worker tenure and benefits eligibility, greater headway has been made through the efforts of several Mexican NGOs, working in collaboration with HP and its suppliers. It is particularly

noteworthy that these improvements have been brought about through the actions of NGOs rather than union efforts. Neither Alpha nor Beta has a strong union presence, due in part to the fact that most workers are on temporary, short-term contracts and are employed not by Alpha or Beta, but rather by external staffing agencies. This has largely precluded the use of strikes and collective action among these workers. One local NGO representative stated: 'We haven't see [*sic*] any unions in ten years. It's tough to establish them because of turnover'. In 2006, the NGO CEREAL revealed that agency workers at Alpha were being concurrently hired and fired on short-term, 15-day contracts in an effort to limit the benefit eligibility of these workers. CEREAL reported this abusive practice to management at both HP and Alpha, and pressure from HP resulted in the cessation of this practice. It should also be noted that HP's first audit of Alpha occurred one year prior to these actions by CEREAL, suggesting that the EICC's lack of explicit attention to agency workers may have led this issue to be overlooked.

In this instance, change was brought about through the interactions of a local NGO, external pressure from HP and the existence (on the books) of national labour regulations that were subsequently privately enforced. This corrective action was possible; thanks to a unique relationship that developed among local NGOs, local electronics manufacturing plants and lead buyers in Guadalajara, referred to by participants as 'the Accord'. The Accord is a novel dispute resolution system among electronics suppliers in the Guadalajara cluster and the local NGO CEREAL that has emerged to respond to electronics workers' perceived pay, benefits and workplace grievances, with minimal engagement of the Mexican legal system. Workers must register a labour complaint to the courts within two months of its occurrence, or they forfeit the right to initiate a labour dispute. Yet, aside from this initial filing, successful arbitrations are resolved without engaging Mexican legal authorities.

The Accord arose out of a standard naming and shaming campaign launched by CEREAL, but evolved over time into a more collaborative arrangement pushed for by HP involving CEREAL, the Guadalajara electronics chamber of commerce: Cámara Nacional de la Industria Electrónica de Telecomunicaciones y Tecnologías de la Información (CANIETI), and a diversity of electronics suppliers in the Guadalajara region. As part of this agreement, CEREAL developed a more direct relationship with the HR managers of local electronics plants. In the event that a worker approached CEREAL regarding a perceived labour violation, a representative from the NGO would contact the employer's HR manager and discuss the issue directly. If the complaint was not addressed by either Mexican labour law or the industry code of conduct, CEREAL would inform the worker that his/her claim was invalid and would encourage the worker(s) to return to work. However, if the complaint violated either national labour law or the EICC, the HR manager would investigate and report back to CEREAL. If the complaint did turn out to be legitimate, the employer would compensate the workers in accordance with Mexican law. Cases that could not be resolved

within the Accord could be escalated by involving the industry association CANIETI, or by initiating a formal lawsuit.

Prior to the Accord, workers had few options to seek remediation for labour grievances due to the absence of a strong union, few resources and/or little knowledge of how to navigate the Mexican legal system. By 2007, CEREAL had addressed 237 total cases of labour violations, 78 per cent of which were resolved through a dialogue between interested parties.[18] Four cases were escalated through the involvement of CEREAL, and 47 cases prompted lawsuits (CEREAL 2007). In 2008 and 2009, in excess of 4,000 workers approached CEREAL, and approximately 95 per cent of these claims pertained to temporary employment issues (Peterson 2010). CEREAL's internal paper-based records on Accord grievances indicate that in 2009, 77 per cent of cases pertained to issues regarding unfair dismissal of workers. A further 3 per cent of 2009 cases addressed unfair dismissal claims in conjunction with an additional violation, such as sexual harassment, salary or discrimination. In 2010, 60 per cent of Accord cases described issues relating to unfair dismissal, and a further 21 per cent of cases pertained to unfair dismissal in conjunction with an additional issue. Unfair dismissal cases in 2009 and 2010 frequently involved efforts to negotiate worker severance pay in accordance with Mexican national labour laws, although negotiations occasionally resulted in worker reinstatement (for more information, see also Salazar Salame 2011).

The Accord has substantially increased the speed by which worker labour grievances are resolved. The staff at CEREAL described the situation as follows: 'CEREAL has worked on hundreds of cases in courts, but it takes one to three years. Workers don't win. With [the Accord], we can win in one to three months, but they still have to use the law, because if the worker doesn't announce to the courts his/her complaint within two months he/she forfeits the grievance'. The efficiency of this system was lauded by both CEREAL and managers of various electronics suppliers — actors normally in disagreement over these issues. A senior executive at HP described his skepticism surrounding the Mexican government's process of grievance resolution, stating that 'local authorities take years [to resolve grievances], and lawyers are the only ones that win'. Describing the Accord, this executive went on to state that 'we can solve these problems, we are mature people'.

Building upon the experience of the Accord, in 2009 a new Guadalajara institution emerged in a further effort to subject staffing agencies to greater oversight, and thus protect the rights of temporary contract workers. While HP has audited many of the local workforce staffing agencies, much of the content of the HP/EICC code does not apply to these organizations. Interviews with these staffing agencies indicated that responding to, and preparing for, these HP audits has been difficult and challenging. Cadena Productiva de la Electronica (CADELEC), an offshoot of the Mexican electronics industry chamber of commerce (CANIETI), has introduced a certification system specifically targeting temporary staffing agencies. While initially voluntary,

HP managers have expressed their intension to mandate that all Mexican temporary staffing agencies used by their suppliers undergo CADELEC certification. External oversight through this new accreditation process is intended to ensure that agency workforce providers fully comply with legal mandates regarding the compensation, dismissal and acceptable employment duration of agency workers. This emerging institution was borne of collaboration between HP and CADELEC in an effort to supplement the weak enforcement and inconsistent application of national labour law. While the prospect of this emergent certification system is promising, it will take time to determine the effect it may have on firms' utilization of agency workers.

All of these developments contrast to some accounts that argue that private voluntary regulation necessarily crowds out state regulation and worker voice (Cutler *et al*. 1999; Esbenshade 2004; Strange 1996). The case of Alpha and Beta Electronics in Mexico shows how private efforts can (under certain conditions) actually promote an effective substitute for weak or absent state regulation. At the same time, it can provide a vehicle through which citizens can exercise their rights in a working environment lacking traditional forms of worker representation.

Improvements in the Czech Republic through Complementary Private and Public Regulation

In contrast to Mexico, improvements in the working conditions of agency workers at Alpha and Beta Electronics facilities in the Czech Republic were achieved through complementary interactions between active national labour regulations and HP's private enforcement efforts. These improvements focused primarily on providing agency workers with payment comparable to that of permanent employees. At the Alpha Electronics facility, the monitoring and implementation of equitable employee payment practices were challenging due to the fluid nature of employment relations at this plant. The working hours and compensation of agency employees at Alpha were overseen by the temporary staffing firms that directly employed these individuals. Initial HP audits found that while Alpha had procedures to monitor their labour agencies' employment and compensation practices, this system was ultimately not effective. Specifically, three compensation issues affecting agency workers were identified by auditors. First, agency workers' overtime wage rates were lower than that of Alpha's comparable full-time employees (70 CZK opposed to 75 CZK). Second, despite the listed overtime pay rates on the books, Alpha agency workers were compensated at only the standard hourly rate for their weekend and weekday overtime hours. Finally, while Alpha had a performance bonus system in place for its employees, these pay rewards were not extended to agency workers.

In response to these audit issues showing that Alpha's compensation policies are in violation of the Czech labour code, HP's SER team began monitoring for compliance of these laws. Alpha worked with its staffing agencies to ensure that overtime payments made to both full-time and temporary

agency workers were equitable, which was confirmed during Alpha's most recent audit. HP auditors specifically noted that a continuous focus on these external labour agencies was necessary as employees' working hours were calculated manually. As such, this is one area where private enforcement can complement active national labour regulations that might otherwise never receive active enforcement at this level. Alpha also initiated a pilot programme to extend performance reward bonuses to agency workers in accordance with Czech labour law. During a 2008 HP audit, one year after this pilot was initiated, Alpha's HR manager confirmed that the performance bonus system had been extended to include agency workers.

At Beta's Czech Republic facility, during an initial audit, HP representatives spoke with employees, and were told that agency workers were being compensated according to the Czech labour code and that these workers' overtime hours were not exceeding the maximum thresholds established by national law. That said, Beta lacked any written procedure to determine, manage or control workers' overtime hours — thus, no evidence was available to provide validation that the law was being respected. A similar issue affected other aspects of Beta's Czech facility.

In response to these issues, HP pressured Beta management to disseminate the EICC code to its own suppliers and agency workforce firms, hoping that this would increase awareness of labour rights among all employees. Staffing agencies were also asked to include information about the EICC in their training programmes for all new recruits. Further, and at the behest of HP, Beta implemented clear procedures to manage employees' work hours, shifts and overtime through the creation of an electronic time system. Reviews of these new electronic systems conducted by HP auditors confirmed that employees were compensated in accordance with the Czech labour code and that worker overtime was within the maximum amount allowed by law.

In both the Czech Republic and Mexico, EICC violations pertaining to agency workers at Alpha and Beta declined substantially over time. The reasons and dynamics behind these developments are particularly important to explore as labour issues surrounding agency workers are frequently overlooked in both private and public systems of regulation (Barrientos and Smith 2006). In this section, we illustrate that even when a particular issue is of similar importance in two national settings — as is in the case of working conditions for agency workers — the pathways of improvement can differ significantly given the institutional context and interest constellation in which suppliers are embedded. Improvements in EICC compliance occurred through divergent interactions between private and public regulatory efforts. In Mexico, improvement was achieved through the presence of a strong worker advocacy organization and HP's own private enforcement efforts that substituted for weak public enforcement of broad national labour laws. In contrast, HP's private monitoring efforts in the Czech Republic complemented active regulatory efforts and national legislation specifically addressing agency worker employment and compensation.

13. Institutional interactions and improvements in environmental protection

The environmental risks associated with manufacturing activities in the electronics industry include the use of hazardous materials and chemical substances, the generation and disposal of waste (both hazardous and non-hazardous), and significant consumption of energy (Overeem 2009). The effective management of these risks creates significant challenges for manufacturing plants throughout the global electronics industry. In Mexico, for example, an estimated 4,000 workers were exposed to toxic materials in the electronics industry in 2009 (CEREAL 2009). In the Czech Republic, some of the major environmental concerns in the electronics industry relate to the use of toxic materials and adequate waste management (Bormann and Plank 2010; Ministry of the Environment of the Czech Republic (MECZ) 2004).

Both the Czech Republic and Mexico have enacted public environmental regulations that place restrictions on the use of specific hazardous substances, generation of physical and atmospheric waste, and requirements regarding the removal of dangerous waste to foreign firms' country of origin. This said, the stringency, effectiveness and enforcement of these regulations vary somewhat across these two national settings. The Czech Republic has increased its regulatory capacity, monitoring efforts and standards regarding environmental issues (Czech Environmental Inspectorate 2006, 2007, 2009; MECZ 2005; Stavins 2005). Public regulation regarding environmental pollution in Mexico is also active, although public enforcement efforts appear to have somewhat limited monitoring capacity within the electronics industry (Gallagher and Zarsky 2007; Schatan and Castilleja 2007; SEMARNAT 2000, 2003).

14. Environmental issues at the facility level

Both Alpha and Beta facilities in Mexico and Czech Republic manifested similar environmental problems, and hence violated the same EICC standards. Most of these violations concerned the limited monitoring of HP's General Specification for the Environment (GSE) standards,[19] inadequate storage of hazardous waste, and deficiencies in the management systems aimed at monitoring and controlling environmental issues at these facilities. These violations are summarized in Table 4.

In the Czech Republic, audits conducted by HP staff at Alpha's plant revealed inadequate storage and handling procedures of chemical substances. Chemicals used for manufacturing were stored without taking all precautionary measures to prevent their spillage, and the facility failed to implement certain control systems capable of mitigating environmental damage in the event of a spill. At Beta's facility, code violations concerned the absence of any improvement plans to reduce solid waste and a lack of awareness regarding HP's GSE. Most violations at both sites, however, were related to the lack

TABLE 4
Plant-Level Environmental Issues

	Alpha	*Beta*	*Improvement Process*
Mexico	• Lack of HP GSE awareness • No system to evaluate EHS risks or legal compliance • No internal performance objectives or self-audits • No task-specific risk training	• Incorrect storage of non-hazardous solid waste and lack of required permits • Use of restricted/ prohibited materials and substances	• Complements: Environmental issues identified through private regulatory efforts. HP's request to resolve these were legitimated by existing public environmental regulations
Czech Republic	• Inadequate storage and handling procedures of chemical substances • Lack of monitoring re: safe handling of materials and environmental consequences	• No improvement plans to reduce solid waste • Lack of HP GSE awareness • Lack of systems to ensure safe handling of materials and process monitoring	• Complements: Environmental issues identified through private regulatory efforts. Improvements reached through collaborations with multiple private actors, and legitimated by existing public environmental regulations

of management systems in place to ensure safe handling of materials and adequate monitoring of processes with potentially damaging consequences for the environment.

In Guadalajara, Mexico, initial audits by HP at Beta Electronics revealed environmental violations pertaining to the storage of non-hazardous solid waste and the lack of permits associated with these substances. Non-hazardous solid waste was stored in an outdoor area lacking a roof, and inadequate attention was given to safety measures. Further, this Beta facility violated HP's GSE requirements regarding the use of restricted substances, such as ozone-depleting chemicals and dangerous cleaning solvents. Alpha Electronics lacked a copy of HP's GSE to ensure that the facility was in compliance with relevant national laws applicable to the facility's use of hazardous substances. Alpha also lacked systems to identify and evaluate EHS risks, establish internal performance objectives, or conduct self-audits. Finally, Alpha offered no specialized training for the specific risks that workers on its production lines experienced.

15. Institutional interactions and similar approaches to environmental improvements

In both the Czech Republic and Mexico, actions taken to remediate environmental violations at Alpha and Beta involved complementary interactions between existing national public regulation and the private monitoring efforts. In Mexico, remediation plans were typically achieved through direct

interactions among HP, the EICC, and the Alpha and Beta plants. For the facilities located in the Czech Republic, HP's SER programme was viewed as a learning opportunity to improve environmental practices and comply with increasingly stringent public environmental regulations. In both national settings, private monitoring drew attention to, and was legitimated by, public environmental legislation.

Prior to the first EICC audits conducted by HP auditors in 2006, both Alpha and Beta facilities in the Czech Republic outsourced the tasks of applying for and administering environmental permits, reporting factory performance, and the handling of hazardous materials and waste. According to environmental managers at these facilities, the private standards and audits introduced by lead customers, such as HP, played an essential role in placing environmental issues on the agenda of top management. This resulted in the allocation of additional resources to address environmental concerns. Both Alpha and Beta were able to improve their environmental performance through consultation with the local ISO 14001 certification office, HP auditors, and personnel from other Alpha and Beta facilities, respectively. At Alpha specifically, the expertise of the HP auditors and personnel from other Alpha facilities located elsewhere in the world helped them develop effective systems and best practices pertaining to energy efficiency and continuous improvement. In the words of the Alpha environmental manager, these external actors helped 'bring the system to life'. At the Beta facility, a new department of environment and health and safety was established to develop recommendations regarding environmental impact and energy consumption.

In Mexico, environmental improvements at both Alpha and Beta facilities were due to private regulatory action that was legitimated by Mexico's public laws regarding environmental pollution and waste levels. While Mexico's environmental protection agency, Procuraduría Federal de Protección al Ambiente (PROFEPA), is charged with the public inspection and monitoring of the Mexican electronics industry, it appears to have limited capacity to audit the country's electronics suppliers (Gallagher and Zarsky 2007). HP's private monitoring requests were legitimated by these public laws, resulting in complementary interactions to bring about productive environmental improvements at Alpha and Beta in Mexico.

To respond to HP's concerns regarding Beta's permitting and storage of non-hazardous solid waste, several actions were taken. To address waste issues, Beta contracted a new external vendor that possessed all necessary permits, and installed an array of compactors and storage bins to house non-hazardous solid waste at the facility. Beta also instituted a procedure to validate that it would not violate HP's GSE requirements concerning dangerous substances. A copy of HP's GSE was supplied to Beta's logistics department, so as to prevent Beta from sourcing components from suppliers that utilized these substances. Alpha addressed environmental code violations through direct meetings with HP, attending EICC meetings on best practices in this area and leveraging knowledge from other Alpha plants located elsewhere in the world. Over the course of four successive HP audits,

Alpha instituted new internal monitoring programmes and refined others. The Alpha plant developed and implemented programmes to assess internal risks, evaluate applicable national EHS laws, educate workers regarding the specific risks associated with their production activities and conform to HP's GSE requirements.

The Alpha and Beta facilities in the two national settings ultimately obtained comparable environmental compliance levels through complementary interactions between public and private initiatives. In the Czech context, HP's SER audits triggered significant changes in management systems and practices, facilitated by reliance on two alternative forms of private regulation: ISO certification and the companies' own environmental responsibility programme. In Mexico, compliance was achieved through information-sharing among, and technical assistance provided by, various private actors. Private monitoring provided additional pressure for firms to address environmental issues that might otherwise only have been addressed by the Mexican PROFEPA, albeit in a limited capacity.

16. Conclusion

Recent scholarly work has suggested that a mixture of public and private regulation is necessary to enforce labour and environmental standards within global supply chains (Bartley 2011; Haufler 2001; Kolben 2007; Locke *et al.* 2007b; Pessoa 2006; Trubek and Trubek 2007; Utting 2005; Weil 2005). Private regulatory initiatives do not operate in a vacuum, but rather build upon existing laws, and respond to pressures from the state and other non-governmental actors (Bartley 2011; Locke *et al.* 2012; Trubek and Trubek 2007). Yet how these alternative forms of regulation interact differs tremendously across nations with different levels and styles of regulatory enforcement. As our contextualized comparison of electronics suppliers in Mexico and the Czech Republic illustrates, in nation-states with more active government enforcement of labour and environmental regulations, private compliance initiatives often complement more stringent government regulation, whereas in countries where these regulations are poorly and/or non-systematically enforced, private compliance efforts often come to serve as substitutes for government enforcement or national laws and regulations.

Variation in patterns of regulatory interaction occurs not simply across countries with different capabilities or styles of regulatory enforcement but also within individual countries, across different issues that may be subject to different regulatory agencies and/or may be responsive to different mixes of intervention. For example, within the same country (Mexico), we illustrated how factory-level enforcement of regulations governing agency work occurred primarily through the creation of private initiatives and institutions that substituted for weak or non-existent government regulatory authorities, whereas environmental standards were enforced through complementary interactions between private monitoring efforts and actions taken by the

government's environmental protection agency. In the Czech Republic, enforcement of both regulations governing agency work and various environmental issues occurred through complementary interactions between private compliance initiatives and state regulatory agencies.

Although this study illustrates that there exist multiple pathways by which worker grievances (such as those concerning compensation and severance issues affecting electronics agency workers) might be addressed, it is important to note that significant barriers limiting workers' basic freedom of association remain throughout the global electronics industry. These barriers are reinforced by suppliers' reliance on externalized agency workforces and developing countries unwillingness or inability to enforce national laws. Novel forms of worker representation (such as the active worker advocacy NGO, CEREAL) may enable proactive workers to seek compensation and severance restitutions in accordance with national laws especially when they team up with powerful private actors, such as HP. Yet freedom of association in the electronics industry remains a persistent challenge, and for this issue, there is no substitute for effective government enforcement of national labour laws.

This article has demonstrated that realizing issue-specific improvements within supply chains is a more complicated process than previously theorized. While a coalition of actors or bundle of institutions *may* be important in realizing supply chain improvements, the form of interactions that actually lead to the enforcement of labour and environmental laws takes on a variety of forms depending on the national context and specific issues addressed. To fully understand (let alone theorize about) the different ways private and public regulation may interact across different countries and over varying issue areas is beyond the scope of this article. But future work on this important area is key if we are to understand and design effective policies and strategies aimed at improving labour and environmental standards in today's global supply chains.

Final version accepted on 23 August 2012.

Notes

1. This article is part of a larger project on globalization and labour standards in the apparel, footwear, commodity, agriculture and electronics industries led by Professor Richard Locke at the Massachusetts Institute of Technology (MIT). Please direct all correspondence to Richard M. Locke, Massachusetts Institute of Technology, Department of Political Science, 77 Massachusetts Avenue, Room E53-473, Cambridge, MA 02139. E-mail: rlocke@mit.edu.
2. These longitudinal supplier audit records show widespread and consistent EICC violations, and only moderate overall improvements over subsequent audits — identified through auditors' detailed written notes and scoring outcomes for the 53 items evaluated as part of the EICC.
3. The results of quantitative analyses of these audit records are presented in a companion article. See Locke *et al*. (2012).

4. Scholars have highlighted the complexities associated with effectively monitoring labour and environmental standards in supply chains, particularly those involving data collection through factory line worker interviews (for a review, see Pruett 2005). Apparent compliance improvements could be due to factory line worker coaching, auditor deception or the presence of 'double books'. Such explanations, however, are inconsistent with the widespread and generally persistent code violations present among HP's global suppliers, as seen in Table 1. Regardless, and to further address such concerns, our research team travelled to our matched pair of Mexico and Czech Republic suppliers to investigate these improvements. Further, external assessments of HP's efforts to improve labour and environmental conditions in general (Greenpeace 2011: 1–3; de Haan and Schipper 2009; van Dijk and Schipper 2007), and specifically within Mexico (CEREAL 2007: 81, 2009: 29, 2011: 32) and the Czech Republic (Danish Commerce and Companies Agency 2008; SOMO 2009), provide evidence that any observed improvements within suppliers are the result of genuine efforts rather than instances of auditor deception. Finally, it is unclear how the previously described deception strategies could effectively produce the illusion of the environmental improvements described in this study.
5. In Mexico, we were able to interview all individuals in leadership roles at the local NGOs CEREAL, CANIETI and CADELEC. Multiple conversations with local experts in the Guadalajara Electronics Industry Chamber of Commerce and university system indicated that these organizations were the primary NGO actors in the Guadalajara electronics cluster (see also Gallagher and Zarsky 2007).
6. For an interesting historical review of corporate codes of conduct and their evolution over time, see Jenkins (2001). Another interesting historical parallel can be found in Seidman (2003).
7. For a review of the displacement hypothesis, see Bartley (2005). The concern for displacement is often alluded to in much of the literature, and more directly in Esbenshade (2004); International Labour Organization Governing Body (1998); Justice (2005); and Frundt (2001).
8. For a critique of existing auditing practices, see Pruett (2005).
9. Although the exact number of companies with codes of conduct is difficult to accurately assess, one proxy for their diffusion can be the number of firms that signed on to the UN's Global Compact. Nearly 5,000 firms have signed on to this parallel voluntary initiative that seeks to, among other things, promote decent working conditions.
10. As one electronics supplier representative stated during an interview, 'almost all customers require the same or similar standards'.
11. We use the term 'electronics industry' to describe the population of firms that actively produce or manage the production of computer hardware. These firms directly manufacture or co-ordinate the assembly of computers, computer peripherals, communications equipment, repairs and similar electronic products. While these hardware firms may engage in other diversified technology services, a core aspect of their business focuses on the production of physical computer hardware. Lead firms in this industry almost always classify themselves within North American Industry Classification System codes for 'Electronic Computer Manufacturing' (334111) and 'Other Computer Peripheral Manufacturing' (334119).
12. For those interested readers, additional information on the FLA inspection of Foxconn facilities, and remedial actions made in response to identified

labour issues can be found online (http://www.fairlabor.org/sites/default/files/documents/reports/foxconn_investigation_report.pdf). See also Pepitone (2012) for public responses from both Apple Computers and Foxconn regarding the FLA labour recommendations. Further, some observers have expressed skepticism with any external monitoring that is not completely independent from the evaluated organization (see arguments in Locke *et al*. 2007a: 5).

13. While HP has avoided unionization of its own facilities, the firm mandates that its suppliers respect local laws pertaining to freedom of association and collective bargaining. HP's 2009 code of conduct (version 3.01) reads: 'Participants are to respect the rights of workers as established by local law to associate freely on a voluntary basis, seek representation, join or be represented by Works Councils, and join or not join labor unions and bargain collectively as they choose' (HP 2009: 3).
14. For purposes of confidentiality, we have disguised the identities of these two major electronics contract manufacturers.
15. For an interesting description of how private and state regulatory efforts combine in different ways, see Amengual (2010).
16. Mandated benefits for full-time workers in Mexico are numerous, and include paid time off, a national minimum wage, annual profit sharing, social security, retirement, and other special benefits surrounding medical conditions and pregnancy.
17. The exact interpretation of this principle has been subject to debate at both the national and regional levels in the Czech Republic (EIRO 2009). Others have been critical of the licensing process that prospective temporary staffing agencies are subjected to by the Czech Ministry of Labour and Social Affairs, claiming that the current licensing process is overly lenient (MakeITfair 2009).
18. Of the 237 total cases reviewed by CEREAL in 2007, a subset of these involved agency workers.
19. HP's GSE details materials and chemical compounds that must be restricted or excluded from the manufacturing processes used to produce HP products.

References

Aleinik, M. (2010). 'Employment Agencies — The Open Door for Migrant Workers: Recruitment Mechanisms and Working Conditions of Russian Speaking Female Migrants in the Czech Republic'. Open Society Institute and Soros Foundation Network Report, http://www.strada.cz/images/Publikace/English/recruitment_mechanism_and_working_conditions.pdf.

Amengual, M. (2010). 'Complementary labor regulation: the uncoordinated combination of state and private regulators in the Dominican Republic'. *World Development*, 38 (3): 405–14.

Audesová, S. and Plešková, V. (2011). 'SVARC system declared illegal'. *Legal News in the Field of Labour Law*, http://www.havelholasek.cz/images/stories/publikace/legal_news_pp_en_2011_12.pdf

Baccaro, L. (2001). 'Civil Society, NGOs, and Decent Work Policies: Sorting Out the Issues'. International Labor Organization (International Institute for Labour Studies), http://www.ilo.org/wcmsp5/groups/public/---dgreports/---inst/documents/publication/wcms_079070.pdf

Barrientos, S. and Smith, S. (2006). 'The ETI code of labour practice: do workers really benefit?' *Ethical Trading Initiative, Sussex*, 1–63.

Bartley, T. (2005). 'Corporate accountability and the privatization of labor standards: struggles over codes of conduct in the apparel industry'. In H. Prechel (ed.), *Politics and the Corporation, Vol. 14 (Research in Political Sociology)*. Greenwich, CT: JAI Press, pp. 211–44.

—— (2011). 'Transnational governance as the layering of rules: intersections of public and private standards'. *Theoretical Inquiries in Law*, 12 (2): 6.

Bhagwati, J. (1995). 'Trade liberalisation and "fair trade" demands: addressing the environmental and labour standards issues'. *The World Economy*, 18: 745–59.

Bormann, S. and Plank, L. (2010). 'Under Pressure: Working Conditions and Economic Development in Central and Eastern Europe'. WEED — World Economy, Ecology and Development Report 2010, http://www.pcglobal.org/files/under-pressure_final_version.pdf.

Brown, D. K. (2009). 'A review of the globalization literature: implications for employment, wages and labor standards'. In R. Robertson, D. Brown, G. Pierre and M. L. Sanchez-Puerta (eds.), *Globalization, Wages, and the Quality of Jobs. Five Country Studies*. Washington, DC: The International Bank for Reconstruction and Development/The World Bank, pp. 63–96.

Brown, D. L. (2005). 'Challenges and Opportunities for the Fair Labor Association in the Post-MFA Period'. Prepared under the supervision of Professor Richard Locke for The Fair Labor Association (FLA) Strategic Planning Meeting, 26–27 July, at MIT Sloan School of Management, Cambridge, MA.

Burruss, J. and Kuettner, D. (2002). 'Forecasting for short-lived products: Hewlett-Packard's journey'. *Journal of Business Forecasting Methods & Systems*, 21 (4): 9.

Byster, L. and Smith, T. (2006). 'From grassroots to global: the Silicon Valley toxics coalition's milestones in building a movement for corporate accountability and sustainability in the high-tech industry'. In T. Smith, D. A. Sonnenfield and D. Pellow (eds.), *Challenging the Chip: Labor Rights and Environmental Justice in the Global Electronics Industry*. Philadelphia, PA: Temple University Press, pp. 111–19.

Catholic Agency for Overseas Development (CAFOD) (2004). Clean Up Your Computer, http://goodelectronics.org/publications-en/Publication_854

Centre for Reflection and Action on Labour Issues (CEREAL) (2007). Electronics Multinationals and Labour Rights in Mexico, http://goodelectronics.org/publications-en/Publication_2281/at_download/fullfile.

——— (2009). Labour Rights in a Time of Crisis, http://goodelectronics.org/publications-en/Publication_3281/at_download/fullfile.

—— (2011). The Crisis that Never Went Away, http://goodelectronics.org/news-en/the-crisis-that-never-went-away-report-on-labour-conditions-in-the-mexican-electronics-industry/at_download/attachment.

Chan, J. and Peyer, C. (2008). 'High Tech — No Rights? A One Year Follow up Report on Working Conditions in China's Electronic Hardware Sector'. Students and Scholars Against Corporate Misbehavior (SACOM) and Pain pour le Prochain (Bread for All): pp. 1–64.

Coe, N. M., Johns, J. and Ward, K. (2008). 'Flexibility in action: the temporary staffing industry in the Czech Republic and Poland'. *Enforcement and Planning*, 40: 1391–415.

Connor, T. and Dent, K. (2006). 'Offside! Labor Rights and Sportswear Production in Asia'. Oxfam International, http://www.oxfam.org/sites/www.oxfam.org/files/Offside.pdf.

Cutler, A. C., Haufler, V. and Porter, T. (1999). *Private Authority and International Affairs*. Albany, NY: SUNY Press.

Czech Environmental Inspectorate (CEI) (2006). Annual Report 2006, http://www.cizp.cz/files/=1756/VZ_CIZP_2006-EN.pdf

—— (2007). Annual Report 2007, http://www.cizp.cz/1362_Annual-Report-2007

—— (2009). Annual Report 2009, http://www.cizp.cz/2667_Annual-Report-2009

Danish Commerce and Companies Agency (2008). Small Suppliers in Global Supply Chains: How Multinational Buyers Can Target Small and Medium-Sized Suppliers in Their Sustainable Supply Chain Management, http://www.eogs.dk/graphics/publikationer/CSR/Small%20Suppliers%20in%20Global%20Supply%20Chains.pdf

de Haan, E. and Schipper, I. (2009). 'Computer Connections: Supply Chain Policies and Practices of Seven Computer Companies'. Stichting Onderzoek Multinationale Ondernemingen (SOMO) Paper, http://www.goodelectronics.org/publications-en/Publication_3054/at_download/fullfile.

Electronics Industry Citizenship Coalition (EICC) (2009). 2008 Annual Report, http://www.eicc.info/documents/2008AnnualReport.pdf

Elliott, K. A. and Freeman, R. B. (2003). *Can Standards Improve under Globalization?* Washington, DC: Institute for International Economics.

Ernst, D. (2004). 'Pathways to innovation in Asia's leading electronics exporting countries — a framework for exploring drivers and policy implications'. *International Journal of Technology Management*, 29: 6–20.

Esbenshade, J. (2004). *Monitoring Sweatshops: Workers, Consumers, and the Global Apparel Industry*. Philadelphia, PA: Temple University Press.

Estache, A. and Wren-Lewis, L. (2008). 'Towards a Theory of Regulation for Developing Countries: Following Laffont's Last Book'. ECARES Working Paper 2008_018, Brussels, http://www.ecares.org/index2.php?option=com_docman&task=doc_view&gid=32&Itemid=20.

European Foundation for the Improvement of Living and Working Conditions (2006). Temporary Agency Work in an Enlarged European Union, http://www.eurofound.europa.eu/pubdocs/2005/139/en/1/ef05139en.pdf.

European Industrial Relations Observatory (EIRO) (2009). Czech Republic: Industrial Relations Profile, http://www.eurofound.europa.eu/eiro/country/czech.republic.pdf.

Fair Labor Association (March 2012). Independent investigation of Apple supplier, Foxconn, http://www.fairlabor.org/sites/default/files/documents/reports/foxconn_investigation_report.pdf

Frundt, H. J. (2001). 'The Impact of Private Codes and the Union Movement'. Paper presented at XXIII International Congress of the Latin American Studies Association, Washington, DC, http://lasa.international.pitt.edu/Lasa2001/FrundtHenry.pdf.

Fung, A., O'Rourke, D. and Sabel, C. F. (2001). *Can We Put an End to Sweatshops? A New Democracy Forum on Raising Global Labor Standards*. Boston, MA: Beacon Press.

Gallagher, K. P. and Zarsky, L. (2007). *The Enclave Economy: Foreign Investment and Sustainable Development in Mexico's Silicon Valley*. Cambridge, MA: The MIT Press.

Gereffi, G., Humphrey, J. and Sturgeon, T. (2005). 'The governance of global value chains'. *Review of International Political Economy*, 12: 78–104.

Good Electronics (2009). Good Electronics Newsletter, goodelectronics.org/news-en/Newsletter/archive-newsletter/goodelectronics-newsletter-december-2009/at_download/file

Greenpeace (2011). Guide to Greener Electronics, pp. 1–3, http://www.greenpeace.org/international/Global/international/publications/climate/2011/Cool%20IT/greener-guide-nov-2011/guide-to-greener-electronics-nov-2011.pdf

Haufler, V. (2001). 'A Public Role for the Private Sector: Industry Self-Regulation in a Global Economy'. Carnegie Endowment for International Peace, Washington, DC.

Hewlett-Packard (HP) (2009). Electronics Industry Code of Conduct (version 3.01–1 June 2009), http://www.hp.com/canada/corporate/hp_info/environment/pdf/supcode.pdf

Interfaith Center on Corporate Responsibility (2010). International Investor Coalition Urgently Calls for Improved Working Conditions in Electronics Manufacturing Facilities, http://www.iccr.org/news/press_releases/pdf%20files/072210Foxconn.pdf

International Confederation of Private Employment Agencies (CIETT) (2009). The Agency Work Industry around the World, http://www.ciett.org/fileadmin/templates/ciett/docs/Agency_work_industry_around_the_world_-_2009_Edition.pdf.

International Labour Organization Governing Body (1998). 'Overview of Global Developments and Office Activities Concerning Codes of Conduct, Social Labeling and Other Private Sector Initiatives Addressing Labour Issues'. Report GB.273/WP/SDL/1(Rev.1). 273rd Session of the Working Party on the Social Dimensions of the Liberalization of International Trade, International Labour Organization Governing Body, http://www.ilo.org/public/english/standards/relm/gb/docs/gb273/sdl-1.htm

Jenkins, R. (2001). *Corporate Codes of Conduct: Self-Regulation in a Global Economy*. Geneva: United Nations Research Institute for Social Development, http://www.unrisd.org/unrisd/website/document.nsf/(httpPublications)/E3B3E78BAB9A886F80256B5E00344278?OpenDocument

Justice, D. W. (2005). 'The Corporate Social Responsibility Concept and Phenomenon: Challenges and Opportunities for Trade Unionists'. Paper presented at the ILO Training Seminar: 'Trade Union Training for Global Union Federations in Asia/Pacific on Globalization, Workers' Rights and CSR', Kuala Lumpur, November 28–December 3, 2005, http://training.itcilo.org/actrav/courses/2005/A3-50909_web/resources/technical_files/3.2%20CSR_unions.PDF

Kolben, K. (2007). 'Integrative linkages: combining public and private regulatory approaches in the development of trade and labor regimes'. *Harvard International Law Journal*, 48 (1): 203–56.

Laffont, J. J. and Tirole, J. (1993). *A Theory of Incentives in Procurement and Regulation*. Cambridge, MA: MIT Press.

Linden, G., Kraemer, K. L. and Dedrick, J. (2009). 'Who captures value in a global innovation network? The case of Apple's iPod'. *Communications of the ACM*, 53 (3): 140–4.

Locke, R. M., Amengual, M. and Mangla, A. (2009). 'Virtue out of necessity?: compliance, commitment and the improvement of labor conditions in global supply chains'. *Politics and Society*, 37: 319–51.

——, Distelhorst, G., Pal, T. and Samel, H. M. (2012). 'Production Goes Global, Standards Stay Local: Private Regulation in the Global Electronics Industry'. MIT

Political Science Department Working Paper No. 2012-1, http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1978908.

——, Kochan, T., Romis, M. and Qin, F. (2007b). 'Beyond corporate codes of conduct: work organization and labour standards at Nike's suppliers'. *International Labour Review*, 146: 21–40.

——, Qin, F. and Brause, A. (2007a). 'Does monitoring improve labor standards? Lessons from Nike'. *Industrial and Labor Relations Review*, 61: 3–31.

—— and Thelen, K. (1995). 'Apples and oranges revisited: Contextualized comparisons and the study of comparative labor politics'. *Politics and Society*, 23 (5): 337–67.

Lüthje, B. (2002). 'Electronics contract manufacturing: Global production and the international division of labor in the age of the internet'. *Industry & Innovation*, 9: 227–47.

MakeITfair (2009). On the Move: Electronics Industry in Central and Eastern Europe, http://www.karat.org/wp-content/uploads/2012/07/on-the-move-EN.pdf.

Ministry of the Environment of the Czech Republic (MECZ) (2004). State Environmental Policy of the Czech Republic 2004–2010, http://www.cenia.cz/web/www/web-pub-en.nsf/$pid/MZPMSFJAIK01

—— (2005). Report on the Environment in the Czech Republic in 2005, http://www.mzp.cz/osv/edice.nsf/D6D4FAF979DB843AC125728E003A8B1B/$file/Report2005.pdf

Ministry of Labour and Social Affairs of the Czech Republic (2009). Labor Inspection in the Czech Republic, http://www.mpsv.cz/files/clanky/7161/Bezpecnost_prace_AJ.pdf

Nadvi, K. and Waltring, F. (2004). 'Making sense of global standards'. In H. Schmitz (ed.), *Local Enterprises in the Global Economy: Issues of Governance and Upgrading*. Cheltenham: Edward Elgar, pp. 53–94.

Ngai, P. and Chan, J. (2012). 'Global capital, the state, and Chinese workers: the Foxconn experience'. *Modern China*, 38 (4): 383–410.

O'Rourke, D. (2002). 'Monitoring the monitors: a critique of corporate third party labor monitoring'. In R. Jenkins, R. Pearson and G. Seyfang (eds.), *Corporate Responsibility and Ethical Trade: Codes of Conduct in the Global Economy*. London: Earthscan, pp. 196–208.

Overeem, P. (2009). Reset: Corporate Social Responsibility in the Global Electronics Supply Chain. MVO Platform and Good Electronics, http://www.goodelectronics.org/publications-en/Publication_3248/at_download/fullfile.

Packard, D. (2006). *The HP Way: How Bill Hewlett and I Built Our Company*. New York: Harper Business.

Partida, R. E. (2004). 'Efectos de los Tratados de Libre Comercio suscritos con otros paises sobre los salarios y empleo (NAFTA, Union Europea)'. Universidad de Guadalajara, Guadalajara, Mexique.

Pepitone, J. (2012). 'Apple supplier audit finds major wage and overtime violations'. *CNNMoney*, http://money.cnn.com/2012/03/29/technology/apple-foxconn-report/index.htm

Pessoa, A. (2006). 'Public-Private Sector Partnerships in Developing Countries: Prospects and Drawbacks'. FEP Working Papers 228, Universidade do Porto, Faculdade de Economia do Porto, http://ideas.repec.org/p/por/fepwps/228.html.

Peterson, K. (2010). 'Temping down labor rights: the manpowerization of Mexico'. *CorpWatch*, http://www.corpwatch.org/article.php?id=15496

Piore, M. J. and Schrank, A. (2008). 'Toward managed flexibility: the revival of labor inspection in the Latin world'. *International Labour Review*, 147 (1): 1–23.

Pires, R. (2008). 'Promoting sustainable compliance: Styles of labour inspection and compliance outcomes in Brazil'. *International Labor Review*, 147 (2–3): 199–229.

Pruett, D. (2005). 'Looking for a Quick Fix: How Weak Social Auditing Is Keeping Workers in Sweatshops'. Clean Clothes Campaign, https://www.cleanclothes.org/documents/05-quick_fix.pdf

Rodriguez-Garavito, C. A. (2005). 'Global governance and labor rights: codes of conduct and anti-sweat shop struggles in global apparel factories in Mexico and Guatemala'. *Politics and Society*, 33 (2): 203–33.

Ruggie, J. G. (2003). 'The United Nations and globalization: patterns and limits of institutional adaptation'. *Global Governance*, 9: 301.

Salazar Salame, H. (2011). 'Worker Rights Protection in Mexico's Silicon Valley: Confronting Low-Road Labor Practices in High-Tech Manufacturing through Antagonistic Collaboration'. Masters Thesis, retrieved from DSpace@MIT, http://hdl.handle.net/1721.1/69456

Schatan, C. and Castilleja, L. (2007). 'The Maquiladora Electronics Industry and the Environment along Mexico's Northern Border'. *International Environmental Agreements: Politics, Law and Economics*, 7: 109–35.

Secretaría del Medio Ambiente, Recursos Naturales y Pesca (SEMARNAT) (2000). 'Informe 1995–2000'. Mexico City.

—— (2003). 'Informe Anual PROFEPA, 2002'. Mexico City, http://www.tierradeideas.com/centro/local/profepa/informe2003PROFEPA.pdf.

Seidman, G. W. (2003). 'Monitoring multinationals: lessons from the anti-apartheid era'. *Politics & Society*, 31 (3): 381–406.

—— (2007). *Beyond the Boycott: Labour Rights, Human Rights and Transnational Activism*. New York: Russell Sage Foundation/ASA Rose Series.

Smith, G. and Feldman, D. (2003). 'Company Codes of Conduct and International Standards: An Analytical Comparison. Part I of II: Apparel, Footwear and Light Manufacturing; Agribusiness; Tourism'. The World Bank, http://siteresources.worldbank.org/INTPSD/Resources/CSR/Company_Codes_of_Conduct.pdf

Smith, T., Sonnenfeld, D. A. and Pellow, D. N. (2006). *Challenging the Chip: Labor Rights and Environmental Justice in the Global Electronics Industry*. Philadelphia, PA: Temple University Press.

Sodhi, M. S. and Lee, S. (2007). 'An analysis of sources of risk in the consumer electronics industry'. *Journal of the Operational Research Society*, 58: 1430–9.

Stavins, R. N. (2005). 'Experience with market-based environmental policy instruments'. *Handbook of Environmental Economics*, 1: 355–435.

Stichting Onderzoek Multinationale Ondernemingen (SOMO) (2009). 'On the Move: The Electronics Industry in Central and Eastern Europe'. MakeITfair Publication, http://www.makeitfair.org/en/the-facts/reports/on-the-move/at_download/file

Strange, S. (1996). *The Retreat of the State*. Cambridge: Cambridge University Press.

Sturgeon, T. J. (2002). 'Modular production networks: a new American model of industrial organization'. *Industrial and Corporate Change*, 11: 451–96.

—— and Lester, R. (2003). 'The New Global Supply Base: New Challenges for Local Suppliers in East Asia'. MIT Industrial Performance Center Working Paper 03-001, http://web.mit.edu/ipc/publications/pdf/03-006.pdf.

The Economist (2010). 'Light and death: a series of deaths expose a big computer-maker to unaccustomed scrutiny'. *The Economist*, 27 May, 395.

—— (2012). 'When the job inspector calls'. *The Economist* (402), March, 69–71.

Trubek, D. M. and Trubek, L. G. (2007). 'New governance and legal regulation: complementarity, rivalry, and transformation'. *Columbia Journal of European Law*, 13: 539–64.

United Nations Conference on Trade and Development (UNCTD) (2004). World Investment Report 2004: The Shift towards Services, http://unctad.org/en/docs/wir2004_en.pdf

Utting, P. (2005). 'Rethinking Business Regulation: From Self-Regulation to Social Control'. UNRISD, Technology, Business and Society Programme Paper No. 15, http://www.isn.ethz.ch/isn/Digital-Library/Publications/Detail/?ots591=0C54E3B3-1E9C-BE1E-2C24-A6A8C7060233&lng=en&id=102693.

van Dijk, M. and Schipper, I. (2007). 'Hewlett-Packard — CSR Company Profile'. Stichting Onderzoek Multinationale Ondernemingen (SOMO) Paper, http://www.goodelectronics.org/publications-en/Publication_1943/at_download/fullfile

Verite (2004). 'Excessive Overtime in Chinese Supplier Factories: Causes, Impacts, and Recommendations for Action'. Verite, http://www.eldis.org/assets/Docs/33814.html

Vogel, D. (2008). 'Private global business regulation'. *Annual Review of Political Science*, 11 (1): 261–82.

Ward, K., Coe, N. and Johns, J. (2005). 'The Role of Temporary Staffing Agencies in Facilitating Labour Mobility in Eastern and Central Europe'. Vedior Working Paper, http://www.ciett.org/fileadmin/templates/ciett/docs/The_role_of_temporary_staffing_agencies_in_facilitating_labo.pdf

Weil, D. (2005). 'Public enforcement/private monitoring: evaluating a new approach to regulating the minimum wage'. *Industrial and Labor Relations Review*, 58 (2): 238–57.

Worstall, T. (2012). 'Apple's Foxconn to double wages again'. *Forbes*, 28 May, www.forbes.com/sites/timworstall/2012/05/28/apples-foxconn-to-double-wages-again/