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Do workplace unions and collective bargaining matter for labour standards compliance? The role of local industrial relations in global supply chains

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Abstract. *This article examines the role of local industrial relations, specifically workplace unions and collective bargaining, in improving the working conditions of apparel factories exporting to multinational brands and retailers. Drawing on a unique data set collected in Bangladesh, Cambodia, Haiti, Indonesia, Jordan, Nicaragua and Viet Nam by the Better Work programme, we show that local industrial relations play a positive role under certain conditions, even when freedom of association and bargaining are restricted, providing partial support for the argument that labour standards at the production end of global supply chains can be improved significantly by engaging with local actors and institutions.*

Keywords: *industrial relations, global supply chains, working conditions, compliance, apparel industry, Bangladesh, Cambodia, Haiti, Indonesia, Jordan, Nicaragua, Viet Nam.*

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1. Introduction

The traditional industrial relations (IR) literature has examined the potential of institutions such as unions and collective bargaining to improve working conditions (Freeman and Medoff 1984; Reilly, Paci and Holl 1995; Weil 1991 and 1994; Aidt and Tzannatos 2002; Bennett and Kaufman 2007). These studies demonstrate that, by engaging in collective bargaining and other voice mechanisms in the workplace, unions do improve outcomes for workers. Building on this evidence, more recent studies have demonstrated that unions can improve adherence to existing regulations (Morantz 2017) and that workplace collective bargaining is associated with better working conditions, even in workplaces that are more likely to be under pressure to minimize costs (Doellgast, Holtgrewe and Deery 2009). Nevertheless, the bulk of such evidence comes from Western countries. In this article, we build on and extend this literature by examining the role of unions and collective bargaining in non-Western countries, which form a vital part of global apparel supply chains.

With neoliberal globalization and the emergence of global supply chains, production has relocated to parts of the world where its costs are lower and workers' freedom of association is significantly restricted. In such workplaces tied to the production end of global supply chains, in particular in the apparel industry, power asymmetries between lead buyers and producers, outsourcing and irresponsible sourcing practices can give rise to indecent forms of work, such as forced labour, low pay, unsafe working environments and excessive working hours (LeBaron 2021; Taplin 2014). This raises the question of whether local IR systems – that is, IR institutions at the workplace level – play a role, even in contexts where they are restricted by the state, employers and supply chain pressures.

Comparative studies show that the national context in which local IR systems are embedded matters, with state interventions both past and present restricting or strengthening the capacity of workers to unionize and engage in collective bargaining (Caraway, Cook and Crowley 2015; Anner 2015). Although IR systems vary substantially among apparel-producing countries in Asia, Latin America and the Arab States, there has been little quantitative empirical research on the extent to which these differences influence working conditions in these settings. Although case study and interview-based research has revealed valuable insights into labour agency and firm dynamics (e.g. Riisgaard 2009; Selwyn 2012; Anner 2015), quantitative analysis of working conditions and IR systems could complement this evidence in significant ways by elucidating structured patterns and highlighting similarities and differences across a large number of factories and country contexts.

Some authors argue that workplaces in the majority of non-Western countries are characterized by “weak” unions and collective bargaining, which would suggest significant limitations on the role that local IR systems can play in improving working conditions (Freeman 2010). Nevertheless, we argue that local IR systems are an important factor in such progress, even in contexts where unions and their ability to bargain collectively are restricted in various ways. Our contribution is both methodological and empirical. Despite extensive research within traditional IR scholarship on Western countries and a large body of research on labour at the production end of global supply chains and production networks in non-Western countries, quantitative evidence on the relationship between local IR and working conditions in these settings remains scarce. Our article addresses this gap by utilizing unique and valuable data, providing new insights into the perennial question of the effects of unions and collective bargaining agreements (CBAs) on workplace conditions. We thus contribute evidence on the patterning of these effects in contexts where freedom of association and collective bargaining rights are variably restricted by the state, employers or supply chain pressures. We ask, to what extent do workplace unions and collective bargaining matter for working conditions in workplaces tied to global supply chains? How does this relationship vary between countries characterized by different restrictions on the collective organization of workers? Understanding these two issues is important in order to account more fully for differences in union politics and restrictions on freedom of association in sites of production, and to identify opportunities for improvement.

We attempt to answer our research questions by analysing a unique data set collected by the ILO's Better Work (BW) programme, covering over ten years of data in apparel factories supplying multinational brands and retailers, located in Bangladesh, Cambodia, Haiti, Indonesia, Jordan, Nicaragua and Viet Nam. We use two measures of IR systems at the workplace level, union presence and the establishment of CBAs, as well as reputable assessments of violations of standards on working conditions as outcomes.

The remainder of this article is organized as follows. We begin by laying out the conceptual framework for our analysis. To this end, the second section examines the literature on the relationship between local IR systems and working conditions, especially within global apparel supply chains, where workers' and employers' positions are arguably subject to distinct commercial pressures and constraints. The third section discusses the different forms of power in local IR systems and how systems at the workplace level are shaped by national contexts, considering critical differences in laws, regulations and practices governing freedom of association and collective bargaining. This is followed, in the fourth section, by a description of our data and methods. In the fifth section, we present our results and in the sixth, we discuss the ways in which they contribute to existing understandings of the effect of local institutions on compliance with labour standards, the limitations of our analyses and avenues for future research. The final section concludes by reflecting on the implications of our findings for policy efforts seeking to improve working conditions in global supply chains.

2. The role of local industrial relations in improving working conditions

Unions and collective bargaining within workplaces have been studied from various perspectives – Marxian, pluralist and behavioural, among others (Fox 1966 and 1973; Edwards 2003; Kaufman 2004; Bennett and Kaufman 2007; Wilkinson et al. 2018; Kuruvilla and Li 2021). Pluralist studies have shown that conflict is better managed when workers have a voice (Backes-Gellner, Frick and Sadowski 1997; Kim, MacDuffie and Pil 2010) and that such voice promotes efficiency and equity (Budd 2018; Budd and Colvin 2008). Studies in Canada and the United States have found that unions are associated with improvements in working conditions (Morantz 2017; Pohler and Riddell 2019; Weil 1994).

One key mechanism driving improvements is worker–management dialogue. Through workplace committees, unions help identify, record and remediate violations (Reilly, Paci and Holl 1995). Weil (1987 and 1994) found that unions in larger factories support labour inspectors, leading to the identification of more violations and better remediation. Unions also educate workers about their rights; for example, Gillen et al. (2002) found that workers in unionized factories were more likely to be made aware of dangerous work practices than workers in non-unionized factories.

Where they are adequately protected under labour laws, unions use collective bargaining to enhance economic benefits and improve working conditions for workers (Freeman and Medoff 1984; Bennett and Kaufman 2007). However, this evidence primarily comes from Western countries. Studies conducted in Europe and North America show that unions improve job quality (Wicks-Lim 2009; Doellgast, Holtgrewe and Deery 2009). Muhl (2001) suggests that unions promote fairer employment terms through collective bargaining, while Emmenegger (2014) argues that CBAs can limit lay-offs or the use of temporary contracts during periods of economic downturn.

In the context of global supply chains and production networks, various strands of the literature have examined the limits and potential of collective organization, reaching different conclusions regarding its impact on working conditions. Arguably, this relationship might play out differently within global supply chains, partly because production takes place in countries where freedom of association is restricted (Anner 2015) and partly owing to market pressures inherent in the structure of supply chains that limit workers'

and employers' room for manoeuvre (Coe and Jordhus-Lier 2011). Some studies show that local workplace organizing has led to concessions from employers on outcomes such as maternity benefits (Selwyn 2012) and the adoption of private codes of conduct (Riisgaard 2009; Riisgaard and Hammer 2011). In Cambodia, improved collective organization led to better working conditions and some welfare improvements (Rossi and Robertson 2011).

Hayter (2011) argues that CBAs in some non-Western countries often do not go beyond national law standards but can nevertheless help realize these standards in workplaces. Besamusca and Tijdens (2015) find that CBA clauses in countries across Africa, Asia and South America improve working conditions over time, though they rarely specify wage levels. However, some studies find that union presence and collective bargaining have mixed effects on working conditions. In Cambodia, Oka (2016) suggests that unions might tolerate violations of regulations on working hours for increased earnings through overtime and might align with management to prevent lay-offs. Consequently, the effects of union presence and collective bargaining on working conditions might vary over time or be muted by trade-offs, supply chain pressures, or both.

Another viewpoint contends that unions and CBAs in some countries play tokenistic roles owing to low membership and coverage, and to suppression by law and practice. In some contexts, unions are viewed as illegitimate or corrupt (Anner 2018; Ashraf and Prentice 2019), which might result in negligible or even negative effects on working conditions, either by reducing the quality and intensity of regulatory scrutiny or by actively failing to address workers' demands and protect their interests.

In sum, while the IR literature relating to Western countries finds that unions and collective bargaining positively affect working conditions, studies in non-Western countries tied to global supply chains show mixed results, derived mainly from interview and case-based research. Although some studies show successful cases of local workplace organizing (Riisgaard 2009; Selwyn 2012), they are based on single firms, small sample sizes or specific countries or regions. We still do not have many examples of the relationship between IR systems and working conditions in workplaces that form the production end of global supply chains across a range of different contexts (but see Teipen et al. 2022). Exploring this relationship in a more generalizable and systematic way is important in understanding the potential for improvement, particularly in light of the existing restrictions on freedom of association posed by the state, employers and supply chain pressures. In what follows, we aim to address this gap.

3. Unpacking local industrial relations

This article posits the relationship between local IR systems – specifically workplace unions and CBAs – and working conditions as being embedded in both supply chain pressures and national contexts. In this section, we first draw on previous studies that contrast different forms of power in local IR systems before examining how country-level differences might affect this relationship within workplaces at the production end of global supply chains.

3.1. Associational and structural power

Building on the traditional IR scholarship, we view workplace IR systems as a particular form of associational power. "Power" is defined as the capacity to realize class interest and "associational power" as "the various forms of power that result from the formation of collective organizations of workers" (Wright 2000, 962; see also Silver 2003). Although these forms comprise political parties and other types of institutional worker representation, we focus on unions and CBAs. They represent two important means through which workers have historically exercised, and to some extent continue to exercise, their right to associate with others and mobilize on issues of mutual concern. Studies have adopted a range of measurements of associational power, such as union density, union presence and the conclusion of CBAs (Kenworthy and Kittel 2003).

Associational power is often contrasted with structural power, that is, “power that results simply from the location of workers within the economic system” (Wright 2000, 962). While the former concerns the collective organization of workers, the latter depends on workers’ strategic position within labour markets and global, as well as national, economies more broadly. Workers’ structural and associational power are closely and dynamically related. The literature on global commodity chains, value chains and production networks has examined these issues in depth (Selwyn 2019; Bair and Werner 2015; Brookes 2013; Cumbers, Nativel and Routledge 2008). Critical studies, in particular, draw upon Wright’s (2000) and Silver’s (2003) analyses to elaborate on how associational power plays out within global supply chains.

Previous evidence suggests that in producer-driven supply chains, where firms have some advantages in the production process relative to retailers, workers at production sites are able to exert some influence and ameliorate their conditions (Riisgaard 2009). More recent evidence from producers in the United Kingdom confirms this argument, suggesting that the structural organization of the supply chain in these cases can create possibilities for unions to advance workers’ interests (Mendonça and Adăscăliței 2020). This is less likely to happen in buyer-driven supply chains in industries such as apparel, where power asymmetries between lead multinational buyers and their suppliers engender significant competition on prices, shortened lead times and volatile orders that, in turn, reduce workers’ and employers’ room for manoeuvre. This makes supplier factories producing for multinational apparel brands and retailers, which are often located in non-Western countries, particularly interesting when studying the role of local IR, given that the structural power of workers is arguably reduced in these settings. In addition, given that these factories, at least in part, supply reputation-sensitive brands and retailers, they are subject to various forms of international oversight, such as buyers’ codes of conduct and monitoring by the BW programme. Although the effect of these interventions is beyond the scope of our study, they can also influence local IR. Furthermore, despite similarities between these factories with respect to their supply chain position, there is substantial variation in the existing restrictions on IR at the country level. We argue that such restrictions, which include imposing a single union system by law, or more or less overt limitations on the establishment of unions, their ability to self-administer and bargain collectively, have significant implications for workplace outcomes.

3.2. Differences in restrictions across national contexts

The national contexts in which workplaces are embedded play an important role in shaping the limits and potential of local IR systems. They determine the laws, regulations, practices and rules, both formal and informal, that embolden or restrict organized labour’s capacity to advocate for workers’ interests and welfare at local, regional, national and international levels. Crucially, these rules and regulations determine if and in what ways workers can unionize, protest, access information, engage in consultations and collectively bargain with employers through their representatives (Ibsen and Tapia 2017). As such, they are the product of both past and present labour struggles, as well as the distinctive ways in which States balance opposing tendencies to control the labour movement and secure its cooperation (Collier and Collier 1979).

Freeman (2010) argues that IR systems in non-Western countries are “weak”, but others have provided more nuance. For example, Caraway, Cook and Crowley (2015) examine different institutional legacies across countries in Asia and Latin America, considering how these influenced the capacity of unions during periods of democratization and neoliberal transformation. In countries where unions had a monopoly status backed by the state, in particular, they find that unions had little experience in mobilizing members and engaging in collective bargaining.

Although we recognize the limitations of existing data in measuring freedom of association, table 1 presents data on the IR contexts of seven major apparel-producing countries across the world. We do not include other major apparel-producing countries such

as China, on which others have written extensively (Elfstrom and Kuruvilla 2014; Liu 2010; Lee 2007). Nevertheless, the cases presented here offer broad variation across geographies and the types of restrictions for which data were available, furthermore allowing us to conduct analyses with a large data set. In the remainder of this section, we elaborate on these differences and assess the ways in which they are likely to shape workplace conditions.

The International Trade Union Confederation has ranked Bangladesh as one of the ten worst countries in the world for working people owing to its regressive laws, obstacles to union formation and violent repression of strikes (ITUC 2022). In addition to cases of violent repression, freedom of association and collective bargaining are outright denied by law and practice in Export Processing Zones (EPZs), from which the majority of Bangladesh's apparel factories operate, suggesting limited capacity for local IR systems to advance improvements in working conditions. As shown in our data, the apparel industry in the country is characterized by particularly low levels of union presence and bargaining.

Jordan and Viet Nam are two examples of national contexts where a range of legal and extra-legal mechanisms pre-empt and undercut the independent collective organization of workers. Viet Nam is an extreme case due to its authoritarian political system (Anner 2015); Jordan is a monarchy where political and civil liberties are significantly restricted.¹ In both countries, there is a single union system imposed by law. There are no data available on union density and collective bargaining coverage in Jordan. In Viet Nam, these figures are high relative to other countries in Asia, at nearly 50 and 25 per cent, respectively. The data indicate that the vast majority of Vietnamese apparel factories are unionized and have a CBA in place, but this might not necessarily mean that unions have a greater capacity to mobilize and advocate for workers' interests.

Indeed, control by the state in both Jordan and Viet Nam is likely to reduce the potential of local IR systems to advance workers' interests. In Viet Nam, there is evidence that formal channels have not been particularly effective in this regard (Cox 2015; Yoon 2009; Tran 2011). Instead, other forms of organizing, such as wildcat strikes, have achieved more positive outcomes (Anner and Liu 2016). In Jordan, poor protection of freedom of association rights in the free trade Qualified Industrial Zones (QIZs), where apparel-exporting factories are located, is exacerbated by the fact that the workforce is atomized and predominantly composed of refugees and migrants from various countries, making it difficult for unions to express a strong collective voice (Lacouture 2022).

Haiti and Nicaragua have histories of routinized repression of freedom of association and collective bargaining rights (Anner 2015). In Haiti, in particular, unionists have reported several cases of dismissals, arbitrary arrests and death threats (ITUC 2020), which are becoming increasingly frequent at the time of writing, amid a worsening humanitarian crisis. Nevertheless, both countries have undergone mobilizing drives that have left unions with some capacity to act independently and advocate for workers' interests (Dufrier 2017; Caraway, Cook and Crowley 2015; Hector 1998). In Nicaragua, for example, apparel factories tend to be unionized (Bair and Gereffi 2014) and there is evidence of negotiations taking place within workplaces (Mendez 2005), pointing to some capacity of local IR systems to improve working conditions.

In Cambodia and Indonesia, union density and collective bargaining coverage are low, reflecting histories of exclusion and demobilization (Caraway, Cook and Crowley 2015). Nevertheless, collective organizing in the Cambodian apparel industry is stronger than in other national industries (Arnold 2014) and there is some evidence of improvements in working conditions at the workplace level (Oka 2016). In Indonesia, unions are scattered across numerous federations and thousands of unaffiliated workplace unions, but there is evidence that they have been able to achieve some collective goals at the regional and local levels (Amengual and Chirof 2016; Caraway 2015). These patterns suggest some potential for local IR systems to influence outcomes in both Cambodia and Indonesia, despite restrictions.

¹ See Freedom House, Jordan country profile. <https://freedomhouse.org/country/jordan>. Accessed November 2023.

Table 1. Freedom of association, unions and collective bargaining by country

	Bangladesh	Cambodia	Haiti	Indonesia	Jordan	Nicaragua	Viet Nam
<i>Country level</i>							
Union density (%) ¹	11.9 (2018)	9.6 (2012)	1.7 (2012)	13 (2019)	-	5.3 (2010)	49.6 (2018)
Collective bargaining coverage (%) ¹	1.6 (2020)	1.3 (2020)	-	10 (2008)	-	6.7 (2020)	24.5 (2018)
ILO C087 ²	Yes	Yes	Yes	Yes	No	Yes	No
ILO C098 ²	Yes	Yes	Yes	Yes	Yes	Yes	Yes
ILO C135 ²	No	No	No	No	Yes	Yes	No
<i>Restrictions on freedom of association</i>							
Union presence ³	Authorities' power to refuse registration; excessive representativity requirements; prohibited in EPZs	Excessive representativity requirements; restrictions on branches	Prior authorization required	Must accept state ideology; restrictions on branches	Single union system; prior authorization required; excessive representativity requirements	Authorities' power to refuse registration in practice	Single union system; nominally in every enterprise
Union administration ³	Restrictions on elections and self-administration; authorities' power to dissolve; external interference allowed	Restrictions on right to self-administer; authorities' power to dissolve on broad grounds	Restrictions on right to elect representatives and self-administer	Authorities' power to dissolve on specific grounds	Restrictions on right to elect representatives and self-administer	Right to self-administer not fully guaranteed in practice	Restrictions on right to draw up constitutions, rules and self-administer
Collective bargaining ³	Barriers to recognition of parties; authorities' power to intervene; restrictions on scope; limitations in EPZs	Barriers to recognition of agents; restrictions on scope; unreasonable procedural requirements	Compulsory conciliation and binding arbitration; authorities' power to intervene	Restrictions on duration; unreasonable procedural requirements; ban in certain sectors	Limitations/ban in certain sectors including QIZs	Right to bargain not fully guaranteed in practice	Restrictions on duration and amendments; unreasonable procedural requirements
<i>Export-oriented apparel factories⁴</i>							
Union presence (%)	7	72	43	58	63	76	99
CBA presence (%)	1	11	6	34	92	66	95
Number of factories	273	1 017	51	285	465	37	104
Time frame	2015–19	2005–19	2010–19	2009–19	2011–19	2011–19	2009–19

Notes: ILO C087 – Freedom of Association and Protection of the Right to Organise Convention, 1948 (No. 87); ILO C098 – Right to Organise and Collective Bargaining Convention, 1949 (No. 98); ILO C135 – Workers' Representatives Convention, 1971 (No. 135).

Sources: Our own compilation based on (1) ILOSTAT, (2) NORMLEX, (3) ITUC and (4) BW data (ILO).

Our general argument is that local IR systems are critical for improving working conditions under certain circumstances, and even in contexts where freedom of association and collective bargaining are restricted. In line with the traditional literature on IR and labour agency, we hypothesize that there is a positive relationship between the presence of unions and CBAs on the one hand and compliance with standards on working conditions on the other. At the same time, we expect to observe heterogeneity among countries with different forms of restrictions. The literature that has been reviewed in this section suggests that the relationship is likely to vary, with unions and collective bargaining less likely to bring positive transformations in national contexts characterized by a single union system, or the outright denial of rights and violent repression in both law and practice.

4. Data and methods

This article draws on data collected by the ILO's BW programme, which aims to improve working conditions, labour rights and firm competitiveness in global apparel supply chains. It is a collaboration with the International Finance Corporation (IFC) that combines interventions at the factory, national and international levels, including workplace assessments and advisory and training visits, with collecting data to inform policy.² The programme started in Cambodia in 2001 and now operates in 13 countries. Participation is mandatory by law in Cambodia, Jordan and Haiti and voluntary (buyer-driven) in the other countries (Rossi 2015). Our sample thus includes export-oriented factories subject to regular training and monitoring that, at least in part, produce for reputation-sensitive brands and retailers (such as Columbia, H&M, Inditex, Muji and Patagonia), establishing shared characteristics in workers' structural power across contexts.

Factories in the programme undergo an initial unannounced two-person, two-day assessment by trained Enterprise Advisors (EAs) employed by BW to collect data on workplace conditions and identify violations. After this first assessment (cycle 1), feedback, advice and training are provided, followed by a second assessment 12–18 months later, repeating the cycles as long as the factory remains in the programme. This provides data from 9,331 assessments of 2,323 factories across countries. Although the data only cover the period a factory is part of the programme, the long duration of the programme in certain countries (e.g. 14 years in Cambodia, 10 years in Indonesia and Viet Nam) allows for longitudinal analyses. This repeated measurement approach is useful for examining complex patterns, such as the relationship between workplace compliance and IR systems, making it possible to distinguish changes over time within units (factories) from differences across units at baseline (Diggle et al. 2002).

The BW programme, coordinated by a Global Team based in Geneva and Bangkok, standardizes advice, assessment methodology and training materials across countries. The programme emphasizes dialogue between social partners, educating both workers and managers on workers' rights. This proactive intervention aims to foster compliance with labour standards, even in hostile environments, and provides confidence in pooling data across countries for analysis.

4.1. Measures

We use union presence and CBAs as proxies for workers' associational power. Union presence is indicative of collective voice, while CBA presence approximates workers' ability to bargain successfully with employers. We recognize the limitations of using these two binary measures, which do not capture union density or CBA content. Nevertheless, they are objective, easy to measure and comparable across countries, thus providing suitable indicators for our quantitative analysis.

² More information on the BW programme is available at <https://betterwork.org/>.

Working conditions are measured through a composite variable that captures violations (non-compliance) of “outcome” standards (Kuruville et al. 2020; Barrientos and Smith 2007) on compensation, contracts, leave, working hours and occupational health and safety, as detailed in the BW compliance assessment tool in the supplementary online appendix (table SA1).³ These violations are assessed against national laws and ILO fundamental labour standards (which ILO Member States are required to ratify in their national legislation). Data are collected by the programme’s EAs during unannounced assessments, involving on-site inspections, document analysis, interviews with managers and randomly selected workers, and triangulation of this information with other relevant actors, such as union leaders. EAs, who have relevant university degrees and professional experience, ensure that information on workplace conditions is accurate and reliable. As BW employees, they are subject to high standards and principles of conduct and integrity, in accordance with ILO provisions. Moreover, the assessment system is designed to ensure EAs’ impartiality by, for example, rotating EAs across factories and regions in a given country.

Violations of standards on working conditions are calculated as the mean of non-compliance across all compliance questions in each category of the BW compliance assessment tool, weighted by the number of questions. This reflects the fact that, while the assessment categories are consistent across countries, the number of questions in each category might vary, reflecting variation in national legislation across countries or changes in the legislation over time. We derive a composite measure of violations by averaging non-compliance across all categories, with higher values indicating worse working conditions.

4.2. Analytic strategy

To test our hypothesis on the relationship between working conditions and local IR systems, we proceed in two stages. In the first stage, we examine the extent to which workplace unions and collective bargaining matter for working conditions in workplaces. To do so, we estimate two regression models using the pooled data set. The first model estimates the effect of union presence on violations of standards relating to working conditions; the second model estimates the effect of CBA presence on these violations for the subset of unionized factories (i.e. conditional on union presence). Since having a union can open the doors to having a CBA, using CBA presence as an independent variable in the same model would introduce a “bad control” problem (Angrist and Pischke 2009).

Drawing on the longitudinal characteristics of our data set, we use a panel within-group estimator (factory, year and BW cycle fixed effects), where the observations are weighted by factory size to reflect greater capacity to comply with standards on working conditions in larger factories relative to smaller ones (table 3). We also include current and lagged variables ($t-1$) of union (CBA) presence because both might play a role in explaining working conditions. Since current union (CBA) presence is correlated with union (CBA) presence in the previous period, not controlling for both would miss either contemporaneous or past effects that would otherwise be captured by the error terms leading to omitted variable bias. We rule out multicollinearity through a pairwise correlation test. The fixed effects model is particularly apt for our analyses, since about one third of the participating factories changed their union and/or CBA status over the period covered by our data set, allowing us to test what happens to violations of standards on working conditions when a union or a CBA is formed *within* the same factory.

In the second stage, we examine how the relationship between unions and collective bargaining and violations varies between countries characterized by different restrictions

³ The questions follow a classification structure that is applied across countries, but the standards used to assess each question are derived from national laws. Where national law either fails to address an issue or lacks clarity, the BW programme establishes a benchmark based on international standards and good practices.

on the collective organization of workers. We test for differences in violations (*t*-test) between union (CBA) and non-union (non-CBA) factories for each country (table 4). Next, we estimate violations on interaction terms between union (CBA) presence and country dummy variables (table 5) to examine variations across countries. Lastly, we repeat the fixed effects estimations used for the pooled sample in the first stage using the same regression models disaggregated by country (table 6).

It is important to clarify that we do not seek to evaluate the effectiveness of the BW programme, which would require comparing outcomes between factories that participate in the programme and factories that do not. Instead, we focus on *local* IR systems, assessing whether workplace unions and CBAs might explain differences in working conditions within factories that belong to a specific segment of apparel supply chains subject to international oversight and directly supplying multinational buyers.

5. Results

The means, standard deviations and pairwise correlations for the sample are shown in table 2.

Table 3 shows our results from the ordinary least square (OLS) regressions of violations of standards on union presence and CBA presence. Column (1) shows results for all factories and all countries over time, and column (2) is for only those factories with union presence. We control for time-invariant factors by including fixed effects at the factory level. In all regressions, we also control for the year of the assessment, the length of participation in the BW programme (measured by the number of BW cycles) and size (measured by the number of workers) at the time of the assessment.

The results show that, within all workplaces, union presence is generally negatively correlated with violations of standards on working conditions. Stated another way, factories with union presence are more likely to be compliant, controlling for all other factors, as per our initial expectations. Indeed, average violations drop by 2 percentage points from a baseline of 40 per cent for factories with union presence compared to other factories with similar characteristics but with no union presence (significant at the 10 per cent level). Within unionized workplaces, adopting a CBA reduces non-compliance with standards on working conditions by 6 percentage points (significant at the 1 per cent level). These findings support our prediction that unions and collective bargaining play a positive role in improving compliance within workplaces under certain conditions.

Turning to the variation in unions and collective bargaining at the country level reveals more patterned outcomes. Table 4 presents the tests of significance (*t*-tests) for average violations of standards on working conditions for union and CBA presence in the factories in each country. A positive coefficient indicates better compliance outcomes in factories with union (CBA) presence relative to those without. Consistent with our hypothesis of a positive relationship between local IR systems and working conditions, we find that differences in violations between factories with and without union (CBA) presence are statistically significant and in the predicted direction in most cases. For example, in Nicaragua, violations are 6 percentage points higher in factories without a union relative to those where a union is present, and 5 percentage points higher when the factory does not have a CBA. Similarly, in Indonesia, the differences in violations for union and CBA presence are around 4 and 5 percentage points, respectively. For Bangladesh and Haiti, however, there is no consistent effect, which might be explained by the particularly low rates of union and CBA presence, as well as the smaller sample sizes. In Cambodia, the coefficient for CBA presence is in the predicted direction, but the coefficient for union presence suggests a negative correlation with violations of standards on working conditions, which could be explained by the existence of unobservable time-invariant characteristics between union and non-union factories, which we control for in the fixed effects model.

Table 2. Means, standard deviations and pairwise correlations

Variables	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1 Violations of working condition standards	0.39	0.34	1														
2 Union presence(<i>t</i>)	0.79	0.41	0.02*	1													
3 Union presence(<i>t</i> -1)	0.73	0.44	0.03*	0.62*	1												
4 CBA presence(<i>t</i>)	0.36	0.48	-0.42*	0.36*	0.26*	1											
5 CBA presence(<i>t</i> -1)	0.37	0.48	-0.24*	0.28*	0.33*	0.59*	1										
6 Size (number of workers)	1 357.98	1 371.37	-0.09*	0.09*	0.06*	0.10*	0.06*	1									
7 Year	2014	3.92	-0.75*	-0.08*	-0.10*	0.24*	0.12*	0.09*	1								
8 BW cycle	5.60	5.24	0.73*	0.15*	0.09*	-0.21*	-0.11*	0.01	-0.59*	1							
9 Bangladesh	0.06	0.23	-0.08*	-0.35*	-0.30*	-0.18*	-0.15*	0.21*	0.21*	-0.18*	1						
10 Cambodia	0.50	0.50	0.66*	0.02*	0.01	-0.53*	-0.37*	-0.16*	-0.42*	0.45*	-0.25*	1					
11 Haiti	0.04	0.19	-0.14*	-0.12*	-0.09*	-0.13*	-0.11*	-0.01	-0.02	0.00	-0.05*	-0.20*	1				
12 Indonesia	0.11	0.31	-0.19*	-0.10*	-0.09*	-0.02	-0.04*	0.11*	0.20*	-0.19*	-0.09*	-0.35*	-0.07*	1			
13 Jordan	0.06	0.24	-0.23*	-0.04*	-0.03*	0.30*	0.24*	-0.10*	0.06*	-0.07*	-0.06*	-0.26*	-0.05*	-0.09*	1		
14 Nicaragua	0.02	0.13	-0.12*	0.02	0.01	0.09*	0.07*	0.01	0.06*	-0.06*	-0.03*	-0.14*	-0.03*	-0.05*	-0.04*	1	
15 Viet Nam	0.21	0.41	-0.37*	0.32*	0.26*	0.62*	0.44*	0.05*	0.19*	-0.24*	-0.13*	-0.52*	-0.10*	-0.18*	-0.14*	-0.07*	1
Observations	9 331																

* indicates statistical significance at the 1 per cent level.

Source: Our own calculations based on BW data.

Table 3. Working condition standard violations within workplaces

	(1) All workplaces	(2) Union presence
Union presence	-0.020*	
	(0.011)	
Union presence (<i>t</i> -1)	-0.003	
	(0.007)	
CBA presence		-0.062***
		(0.020)
CBA presence (<i>t</i> -1)		0.002
		(0.005)
Constant	0.400***	0.427***
	(0.010)	(0.005)
Year FE	Yes	Yes
BW cycle FE	Yes	Yes
Factory FE	Yes	Yes
Observations	6 670	4 849
<i>R</i> ²	0.947	0.958

*, ** and *** indicate statistical significance at the 10, 5 and 1 per cent levels, respectively.

Notes: Standard errors clustered at the workplace level appear in parentheses. Violations of standards on working conditions are measured as the mean number of violations across the categories of compensation, contracts, occupational health and safety, working hours and leave standards as detailed in table SA1 in the supplementary online appendix.

Source: Our own calculations based on BW data.

Table 4. *t*-test of working condition violations within countries by union and CBA presence

Country	(1) Non-compliance by union presence (all workplaces)	(2) Non-compliance by CBA presence (union presence)
Bangladesh	-0.007	-0.001
Cambodia	-0.08***	0.056***
Haiti	0.022***	-0.019
Indonesia	0.036***	0.049***
Jordan	0.027***	0.007
Nicaragua	0.063***	0.054***
Viet Nam	0.048***	0.037***

*, ** and *** indicate statistical significance at the 10, 5 and 1 per cent levels, respectively.

Note: Standard errors clustered at the workplace level appear in parentheses.

Source: Our own calculations based on BW data.

In table 5, we estimate country-level differences in violations of standards on working conditions by adding dummy variables for each country as well as an interaction term with our main explanatory variables, union presence and CBA presence. Model 1 (model 2) uses country interaction terms for union (CBA) presence with Cambodia and no union presence (no CBA, conditional on union presence) as the base category. In both models, the coefficients are weighted by factory size and control for years and length of participation in the BW programme. When it comes to country-specific results, the pattern is slightly more complex, revealing a more modest association between IR systems and compliance. In Cambodia, which is the base category, there are no discernible differences in violations between union and non-union factories controlling for year and BW cycle, but the coefficient for CBA presence is negative, suggesting that unionized factories with a CBA report lower violations on average relative to unionized factories without a CBA. In the case of Indonesia, the union interaction term is negative and significant, suggesting that violations are 4 percentage points lower in unionized factories relative to non-unionized ones, while the coefficient for the CBA interaction term is not significantly different from zero, pointing to no discernible differences relative to the baseline. The results for Nicaragua present a similar pattern, with a negative union interaction term and no discernible differences with respect to CBA presence, controlling for other factors. By contrast, the union interaction is positive in the case of Bangladesh, consistent with the prediction of null or counterproductive effects of unions in contexts characterized by greater restrictions of freedom of association by both law and practice. Similarly, in contexts characterized by a single union system (namely, Jordan and Viet Nam), we find positive coefficients for CBA presence.

Table 6 presents the results of the panel within-group estimator used in table 3, disaggregated by country. Consistent with expectations, the coefficients for union and CBA presence are not statistically significant within workplaces in contexts of significant restrictions on freedom of association rights (Bangladesh) and a single union system imposed by law (Jordan and Viet Nam). In the other countries, we find partial support for the argument that local IR systems play a positive role. In particular, union presence translates into a reduction in violations equal to 5 and 3 percentage points within workplaces in Cambodia and Indonesia, respectively (though partly muted by the lagged union variable in the case of Indonesia), while some effect also emerges in the case of Haiti. The coefficient for CBA presence is statistically significant and of the predicted sign in the case of Nicaragua, but is not statistically significant in the other countries, suggesting a weak effect of CBA presence.

6. Discussion

Overall, our findings provide partial support for the hypothesis that the presence of unions and CBAs within workplaces are negatively correlated with violations of standards on working conditions. We see evidence of these IR systems making a difference particularly when it comes to the results pooling all the countries in our study. These findings are consistent with recent quantitative studies of the role of unions in improving compliance with corporate codes of conduct in factories supplying multinational brands and retailers (Bird, Short and Toffel 2019), and country-specific evidence on the effects of unions in improving compliance with national labour standards in Cambodia (Oka 2016). In particular, we extend Oka's (2016) analysis of Cambodian apparel exporters in two ways. First, we draw on a larger sample that includes multiple countries and a longer time frame, with data up to 2019. Second, we move beyond union presence to include collective bargaining and thus contribute to the broader debates about workplace IR systems.

When it comes to country-specific contexts, our analysis reveals a more complex pattern in the interplay between local IR systems and compliance outcomes. In Bangladesh, regressive laws and violent repression significantly hinder union formation and collective bargaining (ITUC 2022) and our findings suggest that these restrictions are likely to translate into unions having a negligible impact on working conditions at the workplace level. Similarly, in Jordan and Viet Nam, where state control imposes a single union system, our evidence indicates that the formal presence of unions and CBAs is unlikely to alter compliance outcomes.

Table 5. Violations of working condition standards with country interaction terms

	(1) Union interactions (all workplaces)	(2) CBA interactions (union presence)
Union presence (ref. Cambodia)	-0.011 (0.012)	
CBA presence (ref. Cambodia)		-0.026* (0.013)
<i>Interactions</i>		
Bangladesh	0.019 (0.014)	0.068*** (0.026)
Bangladesh × union or CBA presence	0.041** (0.020)	0.007 (0.031)
Haiti	-0.386*** (0.029)	-0.390*** (0.024)
Haiti × union or CBA presence	0.024 (0.033)	0.091** (0.037)
Indonesia	-0.102*** (0.015)	-0.109*** (0.017)
Indonesia × union or CBA presence	-0.042** (0.020)	-0.033 (0.014)
Jordan	-0.372*** (0.020)	-0.494*** (0.014)
Jordan × union or CBA presence	0.036 (0.027)	0.194*** (0.024)
Nicaragua	-0.199*** (0.029)	-0.271*** (0.034)
Nicaragua × union or CBA presence	-0.096*** (0.030)	-0.000 (0.038)
Viet Nam	-0.220*** (0.054)	-0.289*** (0.023)
Viet Nam × union or CBA presence	-0.008 (0.055)	0.088*** (0.026)
Constant (ref. Cambodia)	0.617*** (0.023)	0.605*** (0.020)
Year FE	Yes	Yes
BW cycle FE	Yes	Yes
Observations	9 264	6 520
	0.854	0.870

*, ** and *** indicate statistical significance at the 10, 5 and 1 per cent levels, respectively.

Note: Standard errors clustered at the workplace level appear in parentheses.

Source: Our own calculations based on BW data.

Table 6. Violations of standards on working conditions within workplaces by country

	Bangladesh		Cambodia		Haiti		Indonesia		Jordan		Nicaragua		Viet Nam	
	(1) All workplaces	(2) All workplaces Union presence	(1) All workplaces	(2) All workplaces Union presence	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
Union presence	-0.055 (0.036)	-0.045* (0.026)	0.001 (0.005)	0.001 (0.005)	-0.028** (0.011)	-0.018 (0.012)	-0.018 (0.012)	-0.018 (0.012)	-0.018 (0.012)	-0.018 (0.012)	-0.001 (0.021)	-0.001 (0.021)	0.009 (0.021)	0.009 (0.021)
Union presence (<i>t</i> -1)	-0.033 (0.030)	0.000 (0.013)	-0.008* (0.004)	-0.008* (0.004)	0.022* (0.013)	0.001 (0.007)	0.001 (0.007)	0.001 (0.007)	0.001 (0.007)	0.001 (0.007)	0.002 (0.011)	0.002 (0.011)	-0.009 (0.009)	-0.009 (0.009)
CBA presence														
CBA presence (<i>t</i> -1)														
Constant	0.271*** (0.001)	0.185*** (0.021)	0.155*** (0.012)	0.155*** (0.012)	0.068*** (0.013)	0.096*** (0.011)	0.096*** (0.011)	0.096*** (0.011)	0.096*** (0.011)	0.096*** (0.011)	0.180*** (0.013)	0.180*** (0.013)	0.119*** (0.024)	0.119*** (0.024)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
BW cycle FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Factory FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	193	299	138	138	118	104	104	104	104	479	300	300	360	352
	0.476	0.637	0.741	0.741	0.820	0.835	0.820	0.835	0.835	0.548	0.626	0.626	0.698	0.695

*, ** and *** indicate statistical significance at the 10, 5 and 1 per cent levels, respectively.

Note: Standard errors clustered at the workplace level appear in parentheses. For Bangladesh, the second model could not be estimated due to insufficient data for the subset of unionized factories.

Source: Our own calculations based on BW data.

Conversely, in Nicaragua and Indonesia, we find that local IR systems play a positive role. Nicaraguan apparel factories, where unionization tends to be high, have lower rates of violations, indicating some capacity for local unions to improve working conditions. In Indonesia, despite a fragmented union landscape, unions have achieved some success in regional and local contexts (Caraway, Cook and Crowley 2015). Our findings support this evidence, suggesting that union presence can reduce violations. In Cambodia, while the impact of union presence is less clear, the presence of CBAs in unionized factories correlates with better compliance, suggesting that under certain conditions, collective bargaining can positively influence workplace standards. These country-specific examples underscore the nuanced effects of unions and CBAs, highlighting the importance of differences in restrictions on freedom of association and collective bargaining in shaping workplace conditions.

Our study has a number of limitations that should be addressed in future research. We measure the presence or absence of unions and CBAs but we do not have data on union independence, density and effectiveness or on the contents of CBAs. We are also cognizant that union and non-union factories, or factories that select into having a CBA and those that do not, might differ in unobservable ways. For instance, union or CBA presence may have no effect on compliance but we may find an effect because factories with managers who are more inclined to respect standards on working conditions are also more likely to respect freedom of association rights. Furthermore, factory owners or managers who are more inclined to establish better working conditions may have self-selected to be suppliers to multinational brands, for example, if they believe that respecting minimum standards in a variety of areas including labour will increase orders. We are, however, unable to examine the extent to which this is the case.

In addition, we only examine a specific set of workplaces, consisting of supplier factories directly exporting to reputation-sensitive multinational brands and retailers, which are more likely to be subject to scrutiny and comply with standards on working conditions. Informal sweatshops and home-based workers are excluded from both this level of scrutiny and formal collective organization. While we focus on working conditions measured by national laws, reforming and strengthening these laws by raising social protection and wage floors, as well as regulating power asymmetries between producers and lead buyers, are equally important actions.

The issue of endogeneity of union status is a recurrent concern in studies on the effect of unions (Morantz 2009). Some scholars have argued that it is inappropriate to treat union status as endogenous unless there is a clear theoretical, and in our case historical, reason to believe that the union status of the factories was determined after the factory became compliant with labour standards (Kochan and Helfman 1981). While unions may prevent occupational hazards (or violations), for example, these hazards may also be the reason why workers choose to unionize in the first place. If this were the case, union status could be endogenous in our regressions. It is also plausible that, in factories where there is a union (CBA), workers were more mobilized in the first place, and that this is the main driver for both more successful local IR systems and compliance outcomes. If workers' mobilization improved compliance outcomes prior to unionization, or to the establishment of a CBA, this could bias our findings. Unfortunately, we lack data on factories' mobilization history. We have nevertheless tried to minimize omitted variable bias by using a variety of specifications, including time, year and factory fixed effects, and caution that regression results need to be interpreted as evidence of association and not as proof of causal links. Freeman and Medoff (1981) provided an empirical argument for treating union status as exogenous. They reviewed several major econometric studies of wages and union status and found that results obtained in a system of equations (in which both wages and union status are simultaneously determined) tend to be unstable. Estimates of the union wage effect are sometimes below and at other times above OLS estimates. For these reasons, they recommended treating union status as exogenous in estimating union effects.

7. Conclusion

This article has examined the relationship between local IR systems and compliance with labour standards within apparel factories in Bangladesh, Cambodia, Haiti, Indonesia, Jordan, Nicaragua and Viet Nam exporting to multinational brands and retailers. Our study focused on union and CBA presence as proxies for workers' associational power within supplier factories that are located in non-Western countries and are part of global supply chains, an area that has not received much attention in the quantitative IR literature.

Our results provide partial support for the claim that local IR systems play a role in improving compliance with labour standards, even when national contexts restrict freedom of association and collective bargaining. This is clear from our results using pooled data across all the selected countries and, to a lesser extent, in country-specific results for Cambodia, Haiti, Indonesia and Nicaragua. We do not find an effect, however, for Jordan and Viet Nam, where a single union system is mandated by law, or for Bangladesh, where union and CBA presence is particularly low, severely restricted within workplaces by both law and practice. While these might appear to be fairly modest results, this should not overshadow their potential to inform policy and practice and inspire further research into this critical area. Given the scarcity of quantitative evidence on the impact of local IR across non-Western countries, even modest findings demonstrate that quantifiable effects of workplace unions and CBAs can indeed be identified. This article thus validates the feasibility and importance of extending quantitative analysis on these matters beyond Western countries.

Crucially, we claim that exploring the extent to which local IR systems are linked to working condition outcomes is important, especially given the features of both the supply chain structures and the institutional contexts in which supplier factories are embedded, which place workers at a disadvantage. While recognizing that there are several factors that limit the potential impact of unions and collective bargaining, this article offers a more nuanced understanding of their role in practice, challenging blanket assertions of institutional "weakness".

Our results lend support to the claim that local actors and institutions in the form of unions and collective bargaining matter under certain conditions, even when these systems are restricted by the state, employers and supply chain pressures. This has important implications for policy efforts seeking to regulate workplaces tied to global supply chains. Although studying the efficacy of international efforts was beyond the scope of our study, our findings indicate that the involvement of multinational brands and retailers as buyers of apparel and of international organizations, such as the ILO and IFC, may not alone suffice to improve labour standards at the local level. At the same time, our results also suggest that severe restrictions on freedom of association and collective bargaining rights at the country level can be an impediment to workplace improvements. We should moreover note that local mechanisms are not perfect: despite both top-down and bottom-up efforts, ensuring freedom of association in workplaces at the production end of global supply chains remains a challenging issue.

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Competing interests

The authors declare that they have no competing interests.

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