Public Disclosure of Supplier Labor Standards: The Role of Supplier Accountability in Compliance Improvement

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Public Disclosure of Supplier Labor Standards: The Role of Supplier Accountability in Compliance Improvement

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Abstract

More transparency by global companies regarding labor practices at their suppliers is seen by activists as a key means of holding lead firms accountable for improving sweatshop conditions in their supply chain. The authors focus here on the public disclosure of labor practices in supplier workplaces and how the impacts of such disclosure are influenced by supplier accountability at the local level. They draw on multiple sources of data, especially from the ILO's Better Work program which publicly discloses supplier factory compliance with selected labor standards in five countries. Their analysis of 5,330 BW factory assessments during the 2015-2020 period shows that public disclosure does cause improvement in disclosed standards but also has positive spillover effects on undisclosed standards. The effects of public disclosure are amplified by local factors—media scrutiny of supplier non-compliances and factory management system, whereas the widely-focused lead firm transparency was not significant. This research calls for more attention to local actors in current supply chain transparency and labor rights discourse.

Introduction

Scholars and activists have long demanded increased transparency from global companies about labor conditions in their global supply chains (GSCs). More transparency is expected to empower consumers and advocacy groups to hold global firms accountable for improving labor conditions in GSCs. Transparency also underlies the raft of new legislation in Europe that will allow regulators (as well as consumers and citizens) to hold companies accountable. The new laws in France, Norway, and Germany, and the Corporate Sustainability Reporting Directive (CSRD 2023) and Corporate Sustainability Due Diligence Directive (CSDDD 2024) in the European Union, require that companies publicly report their analysis of risks to human rights (people) and environment (planet) in their business relationships and supply chains.

There has been some increase in supply chain transparency over the last decade. Over half of the biggest fashion brands such as H&M and Nike now disclose the names and location of their supplier factories (Fashion Revolution 2023). Supply chain transparency about environmental, social and governance (ESG) issues requires reporting of actual outcomes in the supply chain. Many companies report some outcomes in the aggregate on their websites, while a few firms (e.g. Patagonia and Nudie Jeans) and some multi-stakeholder institutions (e.g. ILO's Better Work program) disclose audit results of supplier factories.

Increasingly, researchers have examined various dimensions of supply chain transparency (Egels-Zanden, Hulthen, Wulff 2015), as well as their antecedents—including pressures from advocacy groups and disclosure legislations—and their impacts on lead firms (e.g. Egels-Zanden and Hansson 2016). However, the focus of this discourse has been overwhelmingly on lead firms (e.g. Gustafsson, Schilling-Vacaflor, and Lenschow 2023). We know relatively little about the effectiveness of supply chain transparency on the ground and the roles of local actors in shaping the effects of public disclosure. A few exceptional studies on the impact of public disclosure of supplier labor standards (PDSLS) compare supplier compliance with disclosed standards with compliance with undisclosed ones, using the latter as an unaffected "control group" and assuming no spillover effect from public disclosure to undisclosed standards (e.g. Robertson 2019, 2020). This methodological assumption may not hold because firms may respond to public ratings by continuous improvement or opportunistic selective compliance (Clementino and Perkins 2021; Slager, Gond, Crilly 2021).

We argue that there may be spillover from PDSLS to undisclosed standards and that local actors are crucial in shaping the impacts of PDSLS on supplier compliance. We extend the current literature on lead firm accountability to develop a framework of supplier accountability and explicate how its constitutive elements may amplify the effects of PDSLS. This research draws on data from the ILO's Better Work (BW) program in seven countries. Our Difference-in-Difference analysis of 5,330 BW factory assessments between 2015 and 2020 shows that public disclosure of factory labor performance did cause improvement in compliance with disclosed labor standards, as well as a positive spillover effect to undisclosed standards. And our analysis suggests that the local elements of the supplier accountability mechanism—namely media scrutiny of supplier non-compliances and the factory management system, are important in amplifying the effects PDSLS, whereas lead firm transparency, the focus of social activists and policymakers, did not have significant impacts.

This research makes two main contributions to the supply chain transparency and labor standards literature. From a conceptual standpoint, we extend the current focus on lead firm accountability to explicate elements of supplier accountability, elucidating the relationship between transparency, accountability and effectiveness at the supplier level. Empirically, we are among the first to demonstrate spillover effects from public disclosure to labor issues that are not required to be disclosed. In so doing, we show an empirical method to document comprehensive effects of PDSLS. Our findings suggest the need for activists and current sustainability policymakers to pay more attention to disclosing indicators that enhance local or supplier accountability to improve effectiveness.

Supply Chain Transparency: Antecedents and Impacts of Public Disclosure

Various public and private actors have long promoted public disclosure of information to discipline firms, namely "regulation by information" (Schneiberg and Bartley 2008). Variants of this widespread mode of disclosure-based regulation includes mandatory disclosure of restaurant hygiene ratings or plant toxics, mandatory or voluntary sustainability reporting, fair-trade labeling, certifications, and ESG rankings/ratings. Increasingly, activists are pushing for more granular information about supply chains as a means to curb sweatshop conditions in export factories in developing countries. For instance, Fashion Revolution has been crucial in driving major fashion brands to be more transparent about their supply chains by behcnmarking brands on a fashion transparency index (Brun, Karaosman, and Barresi 2020). Legislations such as the California Supply Chain Transparnecy Act 2012 and the UK Modern Slavery Act 2015 have stimulated increased disclosure of risks with regard to forced labor in supply chains. More recent due diligence legislations in France, Norway, Germany and the recent European level CSRD and CSDDD in 2023/4 require companies to disclose more comprehensive human and environmental risks in supply chains (Gustafsson et al. 2023). Increasingly, global companies report, in the aggregate, their supply chain labor performance in their annual reports. In the global fashion industry, 52% of the 250 biggest brands disclosed their first-tier supplier lists (Fashion Revolution 2023:9), feeding information for global supply chain database such as the "Open Supply Hub"[1].

Much of the research on supply chain transparency has focused on the global brands or lead firms that often interact directly with individual consumers, investors, or advocacy groups in high-income countries. Indeed, the very definition of "supply chain transparency" centers on disclosing information about and from the lead firms: their policies and due diligence procedures, their transaction information or business practices, their actions taken to address sustainability issues in their supply chains, and their supplier names and locations also known as traceability information, and sustainability conditions at suppliers (Egels-Zanden et al. 2015; Gardner et al. 2019; Schafer 2023). And a large literature on supply chain management and operations research examined how technology and various management systems can help lead firms improve supply chain transparency (see reviews by Montecchi, Plangger, and West 2021 and Budler, Quiroga, and Trkman 2024).

Studies have examined antecedents of lead firm disclosure of supply chain information and consequences for the lead firms. An important antecedent of lead firm disclosure has been campaigns by advocacy groups in developed countries (Doorey 2011; Egels-Zanden et al. 2015; Budler et al. 2023; Schafer, Petersen, Horisch 2024). A second antecedent stems from legislation on sustainability reporting (Budler et al. 2023; Gustafsson et al 2023). Nonfinancial reporting—which often cedes enforcement to consumers and advocacy groups other than the government—has been a low-cost and popular regulation among policymakers (Hess 2019), as evidenced by the recent raft of sustainability reporting or due diligence directives in EU. The disclosure legislations vary in scope of issues covered, stringency in reporting and enforcement, and effectiveness in changing the behaviors of lead firms and suppliers (Phillips, LeBaron, and Wallin 2018). There is some consensus in prior research that disclosure under the earlier set of legislations have been symbolic rather than substantive (Haji, Coram, and Troshani 2023).

Research on the *consequences* of increased disclosure has also focused on lead firms (see reviews by Montecchi et al. 2021; Budler et al. 2023). Economic impacts on lead firms include infrastructural costs and costs related to loss of proprietary information (Budler et al. 2023), positive (negative) capital market reaction to strong (poor) disclosure (Bartley and Child 2011; Grewal, Riedl, and Serafeim 2019; Shi et al 2024), and potential consumer reactions to supply chain information (e.g. Egels-Zanden and Hansson 2016; Modi and Zhao 2020). Other research has investigated how advocacy groups react to lead firm disclosure (Islam and Van Staden 2022; Schafer et al. 2024).

The current lead firm-centered transparany is based on the idea that more public disclosure would enable advocacy groups and consumers to scrutinize lead firm practices and thus hold them accountable for improving labor and environmental standards in their supply chains (Mason 2020; Gustafsson et al 2023; Fashion Revolution 2023). One key problem in this literature is that the links between public disclosure, empowerment, accountability, and

1 https://opensupplyhub.org launched in November 2022.

effectiveness are often assumed than empirically investigated (Gupta, Boas, Oosterveer 2020). Whether increased disclosure by lead firms actually empowers activists to pressure companies to enforce better standards in the supply chain is not at all clear, as the available evidence is pithy and mixed. While more information about supplier labor and environmental standards may reduce information asymmetry and empower activists/consumers' capacity to interrogate brands (Mason 2020), actual improvement may be compromised for a variety of reasons, including the incompleteness, incomparability, unreliability, or aggregated nature of the information that is disclosed (Dingwerth and Eichinger 2010; Hess 2019; Islam and Staden 2022, Gupta and van Asselt 2019; Deva 2023).

What is missing from this litertuare is a focus on the supply chain itself, and specifically how *suppliers* may react to more disclosure about their labor standards. Suppliers are the ones who are implementing labor practices, so ignoring them is a critical omission. What is also missing from this literature are the pressures on suppliers at the local level, and the voice and actions of local actors in the global South (where export factories are located). These local voices are largely absent in the current discourse about supply chain transparency in the Global North (Mason 2023).

We focus in this research specifically on public disclosure of supplier labor standards (hereinafter PDSLS). This supplier-centered transparency has been in operation but less theorized. In practice, several multi-stakeholder initiatives have focused on disclosing labor standards at supplier factories. Prominent examples include ILO's Better Work program that publicly disclose suppliers' non-compliances of key labor standards on online portals[2] (Robertson 2020). Similarly, the Accord on Fire and Building Safety in Bangladesh (Accord) published safety inspection results and progress rates for each factory online[3]. A few studies of BW showed that labor practices did improve after public disclosure (Ang et al 2012; Hollweg 2019; Robertson 2019, 2020).

But the few studies of PDSLS compared the compliance with disclosed labor standards to compliance with undisclosed standards as a "control group" as a method to demonstrate the effect of public disclosure. This assumes no spillover effect from public disclosure to the latter. What may happen to the undisclosed standards is not only a methodological issue. It is also a contentious issue in the design of the EU's CSDDD (2024) which allows lead firms to prioritize a few issues to address in their supply chains, while critics[4] worry about stagnancy in the issues that are *not* prioritized or disclosed.

The literature on firms' reactivity to public ratings suggests that organizations react differently to public metrics, ranging from active and substantive confirmance to selective compliance or resistance (Epsland and Sauder 2007; Slager et al. 2021). Some factories may see public disclosure as heightening the salience and stake of labor compliance and use disclosed information interactively to strengthen decision-making and accountability for continuous improvement (Gardner et al. 2019:17). They may change internal policies and give more power to the internal compliance team to actively improve compliance (Clementino and Perkins 2021). This continuous improvement approach is more likely to improve compliance with disclosed standards as well as create positive spillover to improve undisclosed areas. By contrast, some factories may react opportunistically: they may not improve if they believe or learn that buyers don't act on the disclosed non-compliances or they may game the public disclosure system by relocating resources from other areas to perform well on standards in the public domain (e.g. Epsland and Sauder 2007). This opportunistic approach may result in stagnancy or decrease in undisclosed standards, namely a negative spillover effect. Which approach—continuous improvement or opportunistic—may prevail is more of an empirical question in particular contexts which we will test in our research. We argue that there will be a spillover effect—positive or negative—from public disclosure to undisclosed areas. We further argue that local actors are crucial in influencing suppliers' reactions to public disclosure by holding them accountable to labor non-compliances and fostering continuous improvement approach among suppliers. We explain actors/factors that may strengthen supplier accountability in the next section.

2 The website for Cambodia is: https://transparency.betterfactories.org/en. Another website for Better Work programs in other countries is: https://portal.betterwork.org/transparency.

3 https://bangladeshaccord.org/factories.

4 Conversation with an EU activist, Brussels, 16 October 2024.

A Supplier Accountability Framework

Given that we focus our research on how suppliers react to public disclosure of their labor standards , we develop a supplier accountability framework to more concretely address the disclosure-accountability-effectiveness relationship at the supplier level. Accountability has been loosely used among practitioners but is an important concept in the political science literature on accountability of policy-makers (Bovens 2007). It has been used to analyze foreign corporate accountability (e.g. Gustafsson et al. 2023) or lead firm accountability. Accountability is a social mechanism wherein some actors have the right to hold other actors to a set of standards, to interrogate whether the latter have upheld the standards, and to impose sanctions in case of noncompliance (Grant and Keohane 2005:29). That is, *who* is accountable to *whom* on *what* and *how*. An effective accountability mechanism entails three stages: establishing an accountability relationship (who is accountable to whom), the scrutiny of disclosed information or practice (what), and enforceability -- who leverages which sanctions (Bovens 2010; Gustafsson et al. 2023).

Applying the three stages of accountability to suppliers, first, some activists and scholars advocate for stronger accountability relationship between supplier factories and workers, *trade unions* in particular, where unions may leverage worker collective power to bargain with management and improve labor standards (Kuruvilla and Li 2021; Reineke and Donaghey 2021). How may PDSLS interact with workplace unions depends on the design of disclosure program, particularly the union's involvement in the disclosure process. Unions may gain more power to push for improvement if they are consulted before public disclosure (they can add non-compliances and/or push for remediation with the threat of public disclosure which hurts supplier reputation among lead firms). After public disclosure, unions could gain more leverage if they can complain or add non-compliances at the public disclosure platform. Several unions from Indonesia and Cambodia have consistently asked for more involvement and worker voice in Better Work's transparency program[5]. Union's daily monitoring may constrain factory managers' opportunistic behavior regarding public disclosure and amplify its positive effects.

The second stage – the assessment of disclosed information, can be carried out by the media, advocacy groups, and unions at the local and global levels. We use "*media scrutiny of supplier non-compliances*" in a broad sense to include expose from newspapers, social media, and other online sources. This supplier-focused report may or may not mention the lead firms; this may be sufficient to threat supplier reputation because lead firms may learn about non-compliances from various media (Hartmann 2021). Media scrutiny and PDSLS may strengthen each other because media exposure can expand the reach and impact of publicly disclosed supplier non-compliances. Meanwhile, PDSLS can serve as cues on problematic workplaces for journalists or other media outlets to report on. Such synergy may not occur if the PDSLS is not used by various media. But factory managers' fear of *potential use* by the media may be a sufficient threat.

The third stage of enforcement and sanctions at the supplier level can involve multiple channels including economic actions from lead firms, legal actions from workers or local government, or factory leaders using their hierarchical mechanism or internal management systems to ensure that their subordinates and supervisors implement relevant standards (Grant and Keohane 2005:36). While lead firms, workers, or government may exert sporadic external accountability pressures on factories after non-compliances, factory management system concerns regular internal accountability practices that hold organizational members accountable to its polices and standards (Najam 1996). These management systems generally include intraorganizational communication of policies and standards, internal risk analysis, and corrective and preventive actions that could improve compliance with labor standards (Bird, Toffel, Short 2019). These are also the usual management systems promoted by major global standards organizations (e.g. ISO or SA8000). Factories that have stronger management systems may be more capable of making improvement (Boudreau 2020) after pubic disclosure heightens the importance of labor compliance. For instance, the compliance staff at the factory may leverage public disclosure together with strong factory policies to advocate for improvement (Clementino and Perkins 2021). Furthermore, a strong management system often involve regular risk analysis—which may also constrain opportunistic behaviors from some production managers who may be motivated

5 Unions' joint statement regarding BW transparency portal: https://solidar.ch/wp-content/uploads/2021/11/Better_Work_Statement_29_September_2021.pdf.

to "sacrifice" issues not required to be disclosed. That is, strong factory management system may amplify the improvement and spillover effects of public disclosure of supplier labor standards.

Our framework of supplier accountability differs from the prior supply chain transparency literature's focus on the lead firm, and the notion that more transparency helps hold lead firms accountable for improvements in labor practices in their supply chains (e.g. Fashion Revolution 2023). The focus of these transparency efforts is to castigate the lead firm for failing to uphold their own public commitments. More supply chain transparency may also stimulate a "race to the top" dynamic among lead firms who improve supplier labor standards to show their responsible sourcing to the public (She 2022). But despite the decades of focus and media campaigns against lead firms, there is little evidence that it works to improve human rights in supplier workplaces—not many lead firms prioritize their reputation for supply chain transparency/responsibility and consumers may not leverage supply chain information (Egels-Zanden and Hansson 2016)[6]. Thus, supply chain transparency at the lead firm level may not be the simplest way to realize improvements in labor practices in supplier workplaces. For real improvement to occur at the supplier level, we expect the overlooked supplier accountability dynamics to be important—if not more important— boundary conditions for the effectiveness of PDSLS.

Data and Methods

Data

We drew on three sources of data. The primary one is from Better Work which instituted in five countries the public disclosure of garment factories' non-compliance with certain labor issues in an online portal.[7] Anyone can visit the website and look at the standards found to be in non-compliance and the factories' responses. This transparency program was implemented in different times. It was implemented in 2016 in Jordan and Vietnam, in 2017 in Indonesia, 2018 in Nicaragua. In Haiti, individual factory instances of non-compliance were disclosed in biannual online reports since 2010. However, these reports did not focus on comparable information about factory non-compliance and were thus less accessible than the BW portal. So, we take 2017—when the comprehensive BW transparency portal went live—as the implementation time in Haiti in our main analysis.[8]

BW also operates in Bangladesh and Cambodia, but BW Bangladesh has never disclosed factory non-compliances publicly. Although there is an online portal to disclose Cambodian factories' non-compliance with a slightly different set of standards since March 2014 (Robertson 2020), it is separate from the BW portal for the other five countries. This allows us to use Bangladesh and Cambodia as a control group, i.e. we compare the changes in compliance with labor standards before and after the implementation of the public disclosure program in the five countries to the compliance in Bangladesh and Cambodia.

We have BW's annual assessment data in the seven countries from 2015 to 2020 February before the Covid-19 pandemic. BW assessments are normally conducted by two assessors who, over two days, check factory documents and interview workers/union representatives and factory managers. The assessment protocol includes around 200 items on various labor standards (e.g. is child labor found) with 0 (no evidence of non-compliance) and 1 (non-compliance found) answers that BW uses to produce compliance reports and share with factory managers and partner brands.[9] To ensure consistency across years for our comparison of compliance before and after public disclosure, we deleted standards that were not assessed consistently across the six years. We further deleted standards that were asked only in one or two countries to facilitate systematic cross-country comparison, leaving 153 standards that were asked consistently across the years and countries for our analysis.

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6 Note that the current crop of due diligence legislation may change lead firm behavior as they could get sued for violations of human rights in their supply chain. And although consumers rarely leverage transparency to hold lead firms accountable, the Norwegian due diligence law enacted in 2022 is actually administered by the consumer authority—it is designed to educate consumers.

7 The website is: https://portal.betterwork.org/transparency

8 We also assign Haiti as "treated" throughout 2015-2020 in the robustness analysis.

9 Better Work assesses factory compliance with national labour law and international labour standards using a tool of approximately 250 binary questions organized into eight clusters: five clusters cover the fundamental principles and rights at work and are assessed in line with international labour standards, and the three other clusters are assessed based on national law and regulations.

BW's Project Advisory Committee in each country—comprising of BW staff and *local actors* namely members from local government, factory associations, and unions—discussed and approved the list of standards for public disclosure in each country. Although the disclosed standards vary[10] slightly across the five countries, 24 standards are common. These include core international labor standards (e.g. no child labor) and standards crucial for worker health and safety. They are categorized into 16 categories of issues or "compliance points" in the BW system. Table 1 presents the common 24 disclosed standards, their larger issue category, and the corresponding compliance rates—the percentage of audits that found no evidence of non-compliance —across the five disclosure countries on the transparency portal and the other two comparison countries. As shown, health & safety and overtime pay are the standards in which compliance was the lowest.

To examine potential spillover effects from public disclosure to undisclosed issues (a methodological issue regarding how to demonstrate causal effect from public disclosure as well as an important consideration in the design of disclosure programs), we divide the *undisclosed* standards into two groups. One group comprises of standards in the same issue category as those that are publicly disclosed. For example, there are seven standards on the issue of "coercion", within the larger group of forced labor standards. One item—can worker exit the workplace freely at all times—is chosen for public disclosure, while the other six (e.g. does the employer withhold wages to force workers to work) are undisclosed. Since the undisclosed standards address the same issues as those disclosed standards, we call them "*undisclosed similar standards*." These similar standards are most likely to experience spillover effects due to their "proximity" to the disclosed standards.

▶ **Table 1. Disclosed standards, issue categories, and compliance rates**

Issue category	Disclosed standards	Compliance rates %	
		Disclosure countries	Comparison countries
Emergency preparedness	Fire detection & alarm system	65.42	78.35
	Accessible unlocked emergency exits	66.69	86.43
	At least 2 possible emergency exits	94.45	98.09
	Periodic emergency drills	93.79	81.84
Overtime wages	Payment of overtime work	70.78	88.64
OSH management system	Mechanisms/committee to cooperate on OSH	71.35	35.37
Hazardous substances	Storage of chemicals & hazardous substance	71.66	64.89
Collective bargaining	Implement CBA	84.79	99.49
Discipline & disputes	Bully, harass, or humiliate workers	93.50	83.97
Wage information	Inform workers about wage pay & deduction	93.67	77.65
Welfare facilities	Provide drinking water	96.26	85.92
Minimum wages	Minimum wages for regular workers	96.26	91.47
Paid leave	Payment for maternity leave	96.76	82.76
Freedom to associate	Employer requires workers to join union	97.75	97.17

10 There are 25 disclosed standards in Vietnam and 28 in Jordan which include two unique items on safety standards at factory dorms and another unique item on [migrant] workers' access to personal documents. We excluded those standards that are unique to each country to facilitate cross-country comparison. We further deleted one disclosed standard on workers' freedom to form or join a union of their choice, which is a core international standard but is not reported in Vietnam and Jordan where country laws did not allow such freedom of association.

Issue category	Disclosed standards	Compliance rates %	
		Disclosure countries	Comparison countries
Union interference & discrimination	Interfere union	98.54	95.37
	Fire workers for union activity	99.68	99.34
	Punish workers for union activity	99.94	99.78
Gender & discrimination	Gender discrimination on conditions of work	99.18	99.56
	Fire workers for pregnancy/maternity leave	99.49	98.24
	Sexual harassment	99.78	99.85
Child laborer	Any worker under legal minimum age	99.71	99.19
Strikes	Punish workers for striking	99.94	99.63
Coercion	Forced overtime under threat of penalty	99.94	99.34
	Free exit from workplace at all times	99.94	99.96

Note: OSH=occupational safety and health; CBA=collective bargaining agreement.

We then combine the rest of the undisclosed standards unrelated to any of the public disclosure issues and call them "*undisclosed distant standards*". Those distant standards are less likely to experience spillover effects from public disclosure than the similar ones, or they may stagnate or deteriorate if the factories neglect these less visible standards to perform well only on the disclosed standards. On the other hand, if these distant standards are also improved after public disclosure, it provides strong evidence for positive spillover. Table 2 presents the three types of standards and the number of items in each issue. The compliance points in bold include standards for public disclosure.

▶ **Table 2. Disclosed and undisclosed similar and distant standards**

Cluster of standards	Issue category/Compliance point	No. of disclosed standards	Avg. no. of similar undisclosed standards	Avg. no. of distant undisclosed standards
Child labor	Child laborer	1		
	Document & protect young workers			2
	Hazardous work & other worst forms			3
Forced labor	Coercion	1	6	
	Forced labor & overtime	1		
	Bonded labor			1
	Prison labor			1
Discrimination	Gender	3	7	
	Race & origin			6
	Religion & political opinion			6
	Other grounds			4

Cluster of standards	Issue category/Compliance point	No. of disclosed standards	Avg. no. of similar undisclosed standards	Avg. no. of distant undisclosed standards
Freedom of association & collective bargaining	Freedom to associate	1		
	Union interference & discrimination	3	5	
	Collective bargaining	1	4	
	Strikes	1	3	
	Union operations			3
Compensation	Minimum wages	1	2	
	Overtime wages	1	2	
	Paid leave	1	6	
	Wage information	1	2	
	Method of payment			1
	Social security & other benefits			4
Working time	Regular hours			3
	Overtime hours			3
	Leave			4
Contracts & human resources	Dialogue, discipline & disputes	1	3	
	Contracting procedures			3
	Employment contracts			5
	Termination			4
Occupational safety & health	Chemicals & hazardous substances	1	4	
	OSH management systems	1	4	
	Welfare facilities	1	4	
	Emergency preparedness	4	5	
	Working environment			4
	Health services & first aid			6
	Worker protection			8
	Worker accommodation			1
Total items		24	57	72

Note: OSH=occupational safety and health.

Our final sample comprises 5,330 factory assessments—excluding 654 observations with missing information on control variables—covering 1841 factories across all seven countries. The majority of factories experienced four (22.4% of factories) or five (16.6%) repeated audits during our observation. Table 3 presents the distribution of factories and audits in our analysis.

Measures

Our dependent variables are compliance rates which are calculated as the percentage of standards with no evidence of non-compliance among the total number of standards in each assessment. As elaborated above, we divided standards into three groups: disclosed, undisclosed similar, and undisclosed distant standards. Compliance rate is calculated for each of these types of standards for each assessment.

We focus on the role of local actors in amplifying the effects of PDSLS but also compare them with global factors, the focus of much activism and sustainability reporting legislation. Since a key argument for supply chain transparency is that lead firm transparency will enhance lead firm accountability and improvement among supppliers, we include a measure of *lead firm transparency*. This is measured by the "fashion transparency index" publicly available from Fashion Revolution, our second source of data. This is a prominent measure of supply chain transparency in the fashion industry and has been used in prior studies (e.g. Jestratijevic and Uanhoro 2022; Schafer et al. 2024). Fashion Revolution has been a major promoter of brand transparency since 2014. It creates the index based on a list of over 200 indicators and reviewing online information available on the brand/retailer's websites and annual reports. The indicators cover five key areas: policy and commitments, governance, supply chain traceability, supplier assessment and remediation, and new "spotlight issues" which could vary across years depending on the trending issues. The final scores (in percentages) allow Fashion Revolution to rank the brands/retailers in various transparency bands (e.g. the lowest 0-10% band and the next 11-20% band etc.).

We use the transparency index in 2018—the year we obtained the names of lead firms sourcing from the BW factories—that covers the biggest 150 fashion brands/retailers in the world. We match the 813 unique names of the primary buyers in our data to the brand/retailer names in the fashion transparency index. For the matched buyer names (42% of our observations), we code the lowest transparency band (0-10%) as "1", 11-20% as "2", and to "51-60%" as "6", the highest band in our data. For those buyers whose names are not covered by the index (32% of our observations), we assigned "0" because these buyers tend to be smaller brands likely facing lower pressure for supply chain transparency. We also assign "0" to observations with missing information on buyer names (26%) because these are also likely to be less well-known brands that assessors did not easily recognize and record. As a result, lead firm transparency varies from 0 to 6 in our data. Since most lead firms disclosed information on their policies and governance, higher values of the index often reflect more granular information on suppliers with some (22%) including a link to the BW transparency portal or to the websites of Accord or Alliance in Bangladesh that disclose factory safety assessments (Fashion Revolution 2018).

For accountability relationship at the supplier level, *workplace union* is a binary variable with 1 indicating the presence of union(s) at the factory and 0 otherwise. About 69% of our observations are covered by workplace union(s).

Media scrutiny of supplier non-compliances is measured by the number of environmental, social, and governance (ESG) incidents recorded in the RepRisk, one of the largest ESG database. Since 2007, RepRisk screens daily ESG news on 26 issue areas from over 150,000 global and local media sources—including print media, social media, blogs, newsletters and other online sources—in 23 languages[11]. It uses a machine learning algorithm to delete duplicated news, and then human analysts confirm and tag the news. This dataset has been used in prior studies including those on supply chain ESG incidents (e.g. Mateska et al. 2023). We obtained this database through Wharton Research Data Services. A research assistant matched the factory names and country in our BW dataset with those in the RepRisk database and recorded the ESG incidents associated with each matched factory between 2010 and the assessment date[12]. In our dataset, 587 (11%[13]) observations are linked to 1 or more exposed ESG incidents before the assessment.

Finally, *factory management system* is measured by an index of 13 items on human resource and occupational health and safety (OHS) management practices. These include whether the factory has adequate HR or OHS policy,

11 The number of sources and languages have increased over the years. More description is on RepRisk website: www.reprisk.com.

12 There were only 5 more news if we start from 2007. We did not include these 5 incidents due to the long time difference from 2015, the beginning year of our data.

13 In light of this small percentage of scrutinized factories, we did not differentiate the type of news—environmental, social, or governance—or the severity or source of news in our analysis.

communicate these policies, assign accountability, and monitor these issues to identify risks. Table A in the Appendix provides the list of items. These items were evaluated by the assessors during the assessment as background information and not included in compliance rates calculations. Each item has 0 (not adequate) or 1 (adequate) answer and we sum up all the answers to the 13 questions to form the index. Although assessing "adequate" practices may be arbitrary to some extent, BW listed specific example practices for each one practice to facilitate consistent assessment.

We included several control variables that have been found to influence compliance with labor standards (Locke et al. 2007; Oka 2016; Bird et al. 2019). These include the *factory size* (log total workers), *factory age* (log years), *percentage of female workers*, and *assessment cycle/experience* (the number of years that the factory has been audited by BW). We also control for the *percentage of permanent workers* among total workforce as it may signal a "high road" strategy of stable employment and compliance (Distelhorst and McGahan 2022).

Analytical strategy

Our analysis unfolds in two steps. We first examine whether BW's public disclosure program affects factories' compliance with labor standards—for disclosed, undisclosed similar and distant standards. We then examine how the different constitutive elements of supplier accountability and lead firm transparency moderate the effects of PDSLS on compliance with labor standards.

We use difference-in-difference (DiD) designs as they are generally superior to the pooled ordinary least squares regression for evaluating programs' effects. Since the BW transparency program was implemented at different times across the five countries, we run two-way fixed effects (TWFE) models with staggered treatments and, to address the potential weaknesses of TWFE, cross-check the results with the prominent group-time causal methods[14] recently developed by Callaway and Sant'Anna (2021). We also use the latter to test whether the five disclosure countries and Bangladesh & Cambodia followed similar or parallel trends before public disclosure program but diverged to different trends after the program. Having established that both approaches produce similar results, and given also that we have parallel trends between the disclosure and comparison countries, we report the TWFE results in our main analysis for its ease of interpretation and flexibility regarding moderators, which is a key part of this study. Callaway and Sant'Anna's (2021) group-time method is more robust but also requires larger observations in each group/country for moderation analysis, we thus use mainly TWFE as some of our countries (Haiti and Nicaragua) have small observations.

For DiD analysis, we create a binary variable –*after public disclosure* in the disclosure countries or treatment group—that equals 1 for all the months after the implementation of the transparency program in the particular treated country. Here our time variable is at the year-month level.

Results

Table 4 presents the summary statistics of the variables in this study. As shown, compliance % with disclosed standards tend to be higher than those with undisclosed similar or distant ones.

Public Disclosure, Compliance Improvement & Spillover

We first use group-time causal methods (Callaway and Sant'Anna 2022) to test whether the five disclosure countries and the two comparison countries were on similar/parallel trends before BW transparency portal. Figure 1 visualizes the differences in compliance with disclosed standards between the two groups of countries (compliance rates in five disclosure countries minus compliance rates in Bangladesh and Cambodia) over implementation time (with 0 indicating the month of the start of implementation). As shown, the differences in compliance rates across the two

14 This approach considers multiple groups and multiple treatment time periods for more precise estimation and interpretation, extending the two groups and one treatment time assumption for conventional TWFE.

groups before the implementation of public disclosure program (0) mostly included 0 and fluctuated below and above 0, suggesting non-significant difference and supporting parallel trends. After public disclosure, the differences consistently and gradually moved above 0, suggesting that the compliance rates in disclosure countries became consistently higher than that in the two comparison countries.

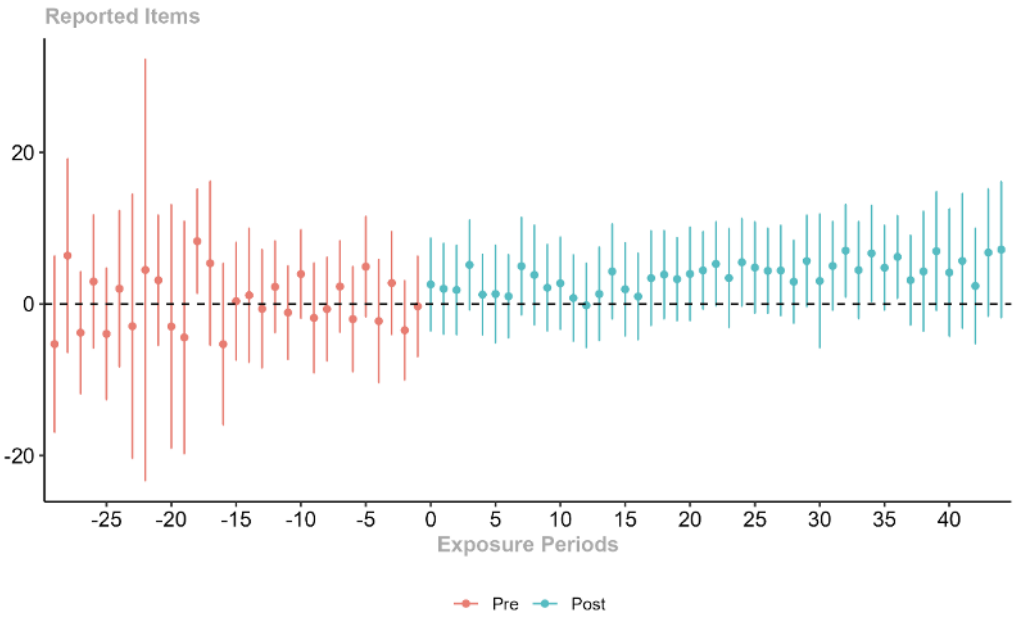
▶ **Table 4. Descriptive information of variables used in analysis**

	Disclosure countries		Comparison countries	
Variable	Mean	S.D.	Mean	S.D.
Compliance with disclosed standards%	90.95	7.19	88.98	8.92
Compliance with undisclosed similar standards%	90.25	7.25	83.31	8.67
Compliance with undisclosed distant standards%	88.92	6.92	83.11	7.55
Lead firm transparency	2.04	2.30	1.39	2.31
Workplace union	0.83	0.37	0.53	0.50
Media scrutiny of supplier non-compliances	0.30	1.45	0.29	0.92
Factory management system	9.28	3.14	4.59	3.51
Factory size (log total workers)	6.90	0.98	6.82	0.99
Factory age (log years)	2.31	0.72	1.95	0.68
Women workers %	77.62	15.87	74.34	18.92
Regular workers %	77.64	33.46	89.93	10.08
Audit cycle/sequence	4.08	2.71	2.22	1.20

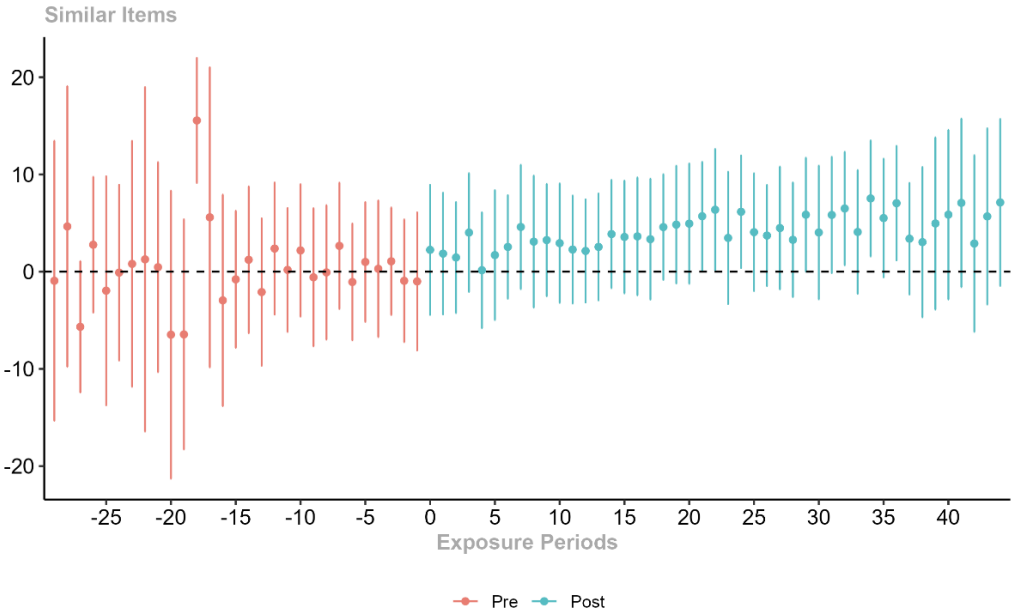
Note: Based on 2763 audits in disclosure countries and 2567 audits in comparison countries; S.D.=standard deviation.

Figure 2 shows a similar pattern for compliance with undisclosed similar standards. The same trend was evident for distant undisclosed standards before public disclosure and stronger improvement after that (Appendix B).

▶ **Figure 1. Parallel trends between disclosure and comparison countries on disclosed standards**



▶ **Figure 2. Parallel trends between disclosure and comparison countries on undisclosed similar standards**



We summarize the average treatment effects (ATT) from the group-time causal methods in Table 5. All the ATT are significant, with 95% uniform confidence bands excluding 0. The overall ATT suggests that improvement in compliance rates before and after public disclosure in the five disclosure countries is around 3.673 to 4.679 percentage points higher than the change in comparison countries. Interestingly, improvement regarding undisclosed distant standards is strongest (with biggest ATT), supporting positive spillover effect even to distant standards.

▶ **Table 5. Group-time causal method analysis results regarding compliance rates in disclosure versus comparison countries**

Compliance % with	ATT	Standard error	95% Confidence interval
Disclosed standards	3.673*	1.44	[.85, 6.50]
Undisclosed similar standards	4.059*	1.611	[.901, 7.217]
Undisclosed distant standards	4.679*	1.744	[1.261, 8.096]

Note: ATT=average treatment effect.

After establishing that the trends were similar between disclosure and our comparison countries, we use TWFE models with staggered treatments for the main effect analysis as well as moderation analysis due to this approach's flexibility regarding moderators. Table 6 reports the main effects from this approach. As shown in the coefficients for "after public disclosure," *improvement* in compliance with disclosed standards after disclosure is 2.509 (p<.001) percentage point stronger *in disclosure factories* than *the change in comparison factories*. The difference in improvement is 3.28 (p<.001) and 2.596 (p<.001) percentage points for compliance with undisclosed similar and distant standards, respectively. These results support positive spillover effects. Overall, both the group-time method and TWFE analysis support improvement in disclosed standards and positive spillover effect to undisclosed standards.

▶ **Table 6. Two-way fixed effect (staggered treatment) results: improvement & spillover**

	Dependent variables: compliance % with		
Variables	Publicly disclosed standards	Undisclosed similar standards	Undisclosed distant standards
After public disclosure	**2.509*** (0.411)**	**3.280*** (0.394)**	**2.596*** (0.330)**
Lead firm transparency	-0.041 (0.131)	-0.066 (0.144)	-0.084 (0.106)
Workplace union	0.025 (0.539)	-0.074 (0.438)	-0.622 (0.401)
Media scrutiny of supplier non-compliances	-0.678 (0.462)	-0.886* (0.406)	-0.861** (0.263)
Factory management system	0.679*** (0.048)	0.767*** (0.045)	0.557*** (0.039)
Women workers%	0.043* (0.018)	0.051** (0.016)	0.021 (0.015)
Regular workers %	0.009 (0.012)	0.003 (0.011)	0.002 (0.009)
Factory size (log workers)	-0.315 (0.456)	-1.328*** (0.401)	-1.119** (0.370)
Factory age (log years)	-1.314+ (0.761)	-2.443*** (0.699)	-1.178† (0.662)
Audit cycle	0.954 (0.657)	-0.736 (0.610)	0.286 (0.541)
Factory fixed effect	Yes	Yes	Yes
Year-month fixed effect	Yes	Yes	Yes
Observations	5330	5330	5330
R-squared	0.084	0.133	0.103

Note: (staggered treatment) two-way fixed effect regression coefficients with robust standard errors clustered by factory in parentheses; † p<.10, * p<.05, ** p<.01, *** p<.001

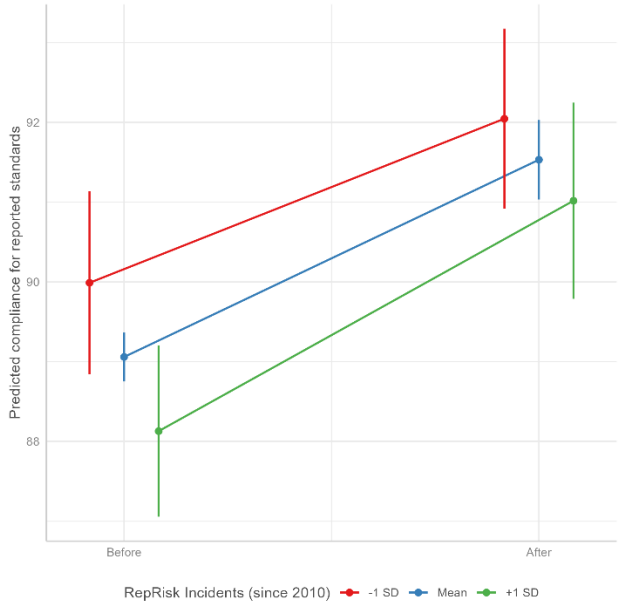
Notably, lead firm transparency is not related to better compliance (negative but non-significant coefficients in Table 6). Nor is the presence of workplace union significant. Media scrutiny of supplier non-compliances is associated with significantly lower compliance with undisclosed similar and distant standards. This may result from media revealing ESG non-compliances at low compliance factories. A stronger factory management system is related to better compliance with all three types of labor standards.

Moderators: The Role of Local Actors

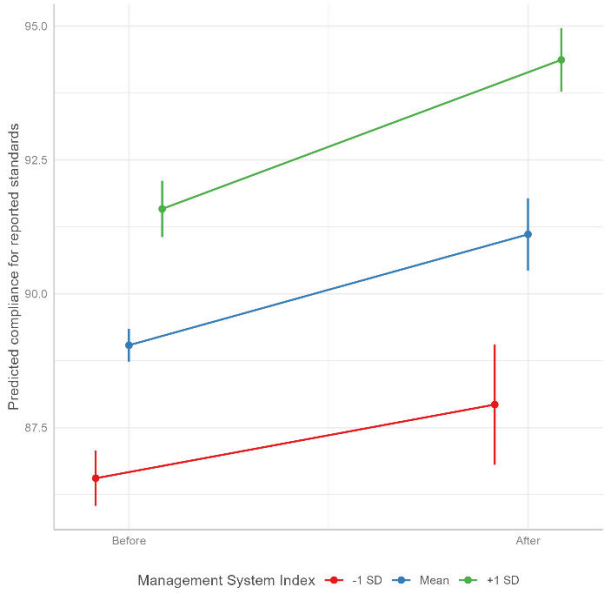
We use the TWFE models with staggered treatments to test potential moderation effect of global and local accountability mechanisms. Table 7 summarizes the results. As shown, the moderation effects of lead firm transparency and workplace union are positive but not statistically significant. Media scrutiny of supplier non-compliances shows positive and significant moderation effect on compliance with disclosed standards. Figure 3 graphically shows this moderation effect. The steeper line for those factories with more exposed ESG incidents suggests that these factories improved faster after public disclosure. However, its moderation effects on the undisclosed standards are negative and it is significant for distant standards (b=-0.424, p<.01). Factories under heavy media scrutiny may be more vigilant to public disclosure and re-allocate resources from distant standards to disclosed areas to improve performance (i.e. positive moderation on disclosed standards).

Factory management system shows positive and significant amplifying effects on the impact of public disclosure on the three types of labor standards. Factories with better management system improved more on disclosed standards after public disclosure (b=0.174, p<.05), as well as having stronger positive spillover effect to undisclosed similar standards (b=0.164, p<.05) and undisclosed distant standards (b=.207, p<.01). Factory management system facilitates improvement and spillover effects of public disclosure. Figure 4 graphically shows this moderation effect for disclosed standards.

▶ **Figure 3. Amplifying effect of media scrutiny of supplier non-compliances on effect of public disclosure on compliance with disclosed standards**



▶ **Figure 4. Amplifying effect of factory management system on the impact of public disclosure on compliance with disclosed standards**



▶ Table 7. Two-way fixed effect (staggered treatment) results: moderation of global and local factors

	Dependent variable: compliance % with											
Variables	Publicly disclosed standards				Undisclosed similar standards				Undisclosed distant standards			
After public disclosure (After)	2.510*** (0.489)	1.490+ (0.812)	2.368*** (0.417)	0.854 (0.929)	3.187*** (0.470)	3.033*** (0.657)	3.330*** (0.403)	1.716+ (0.893)	2.597*** (0.412)	2.126*** (0.637)	2.769*** (0.334)	0.626 (0.721)
Lead firm transparency	-0.041 (0.131)	-0.040 (0.131)	-0.041 (0.131)	-0.049 (0.130)	-0.066 (0.144)	-0.066 (0.144)	-0.066 (0.144)	-0.074 (0.143)	-0.084 (0.106)	-0.083 (0.106)	-0.084 (0.106)	-0.094 (0.105)
Media scrutiny of supplier non-compliances	-0.678 (0.462)	-0.664 (0.463)	-0.775+ (0.454)	-0.684 (0.457)	-0.886* (0.406)	-0.882* (0.406)	-0.851* (0.416)	-0.892* (0.403)	-0.861** (0.263)	-0.854** (0.263)	-0.742** (0.272)	-0.868*** (0.261)
Factory management system	0.679*** (0.048)	0.680*** (0.048)	0.680*** (0.048)	0.621*** (0.053)	0.768*** (0.045)	0.768*** (0.045)	0.767*** (0.045)	0.713*** (0.052)	0.557*** (0.039)	0.557*** (0.039)	0.555*** (0.039)	0.488*** (0.045)
Workplace union	0.025 (0.540)	-0.200 (0.541)	0.036 (0.540)	0.035 (0.539)	-0.078 (0.438)	-0.128 (0.461)	-0.078 (0.439)	-0.064 (0.437)	-0.622 (0.401)	-0.726+ (0.410)	-0.636 (0.401)	-0.610 (0.399)
After X lead firm transparency	0.000 (0.127)				0.044 (0.131)				0.000 (0.109)			
After X workplace union		1.226 (0.837)				0.298 (0.656)				0.567 (0.658)		
After X Media scrutiny			0.346* (0.149)				-0.124 (0.149)				**-0.424** (0.139)**	
After X Factory management system				0.174* (0.082)				0.164* (0.076)				0.207** (0.063)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Factory fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year-month fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.084	0.085	0.085	0.086	0.133	0.133	0.133	0.134	0.103	0.103	0.105	0.106

Note:(staggered treatment) two-way fixed effect regression coefficients with robust standard errors clustered by factory in parentheses; † p<.10, * p<.05, ** p<.01, *** p<.001

Robustness Tests

We did not find significant main or amplifying effects from lead firm transparency—as measured by Fashion Transparency Index (FTI) in 2018—on compliance with labor standards, in contrast to the hope of its various advocates. We ran the same TWFE models with FTI's sub-elements—i.e., policies, governance, traceability, or assessment and fix —and in the years of 2017 (the first edition) or 2019 (with index for additional 50 brands), but the results were similar. We had previously coded buyers not rated by Fashion Revolution and observations with missing buyer information as "0". In an alternative approach, we tried to distinguish those buyers not covered by FTI from those observations without buyer names by treating them as separate categories; this also did not change the pattern of results.

We had previously assigned Cambodia as one of the comparison or "control" groups but there is actually a separate online transparency portal to disclose non-compliances by Cambodian factories. That is, Cambodian factories were also influenced by public disclosure, albeit in a different website. And Cambodia has a large number of factories in BW because all export garment factories are required to join BW based on its trade agreement with the US. Similarly, US-Haiti trade agreement requires all the 20 plus garment export factories in Haiti to join BW. And BW Haiti has disclosed assessment findings for individual factories in biannual reports since October 2010. For our robustness test, we assigned Cambodia and Haiti as "treated" throughout our observation period (2015-2020 February). With this alternative assignment, the TWFE models still showed positive and significant improvement in disclosed standards and positive spillover to both undisclosed similar and distant standards after public disclosure. The coefficients are larger than the results from assigning Cambodia as "untreated" or the control group. These larger estimates are consistent with the fact that factories in Cambodia and Haiti already have some disclosure programs given their separate portal or reports and thus under pressure to improve labor standards relative to pure control factories without any public disclosure. The moderation effects of media scrutiny of supplier non-compliances remain similar.

A major difference is that the moderation effect of factory management system changed from significantly positive to negative in the alternative specification. This may result from big improvement among Cambodia factories (also found by Robertson 2020) in contrast to the control group (Bangladesh). However, Cambodia factories also had somewhat poorer management systems. Indeed, the average factory management system index is 4.96 for Cambodian factories whereas factories in other disclosure countries had 9.26 out of 13 practices. Bangladesh factories had the lowest management system index with an average of 3.34. The stronger improvement among now "treated" Cambodia factories than the most poorly managed Bangladesh factories may be attributed to factories with "poor" management system in this alternative specification. This robustness finding is in line with our theoretical framework of multiple supplier accountability mechanisms, and while Cambodian factories may have poorer management system, their participation in the BW program can still improve compliance with labor standards through other means such as media scrutiny.

Discussion

Demands for increased disclosure of labor outcomes at export factories has been a major strategy of anti-sweatshop activists to push global companies to address labor rights non-compliances in supply chains. And the recent spurt of legislation in the EU is designed to achieve the same purpose. But research on the effectiveness of PDSLS on the ground is limited. We examine potential impacts of PDSLS on supplier factories' compliance improvement in our research. To do so, we distinguish disclosed standards from undisclosed ones and consider the role of local factors using a supplier accountability framework. Difference-in-Difference analysis of 5,330 Better Work factory assessments from 2015 to 2020 February shows that public disclosure did cause improvement in disclosed standards and there was positive spillover effect to undisclosed standards, both similar and distant ones.

However, lead firm transparency – the major focus of activists in the countries of the global North, did not cause improvement in labor compliance in supplier factories. Neither did it amplify the effects of PDSLS. In contrast, we find that local factors that help hold suppliers accountable matter more. Specifically, media scrutiny of supplier non-compliances can strengthen the effect of public disclosure on compliance with disclosed standards. Most importantly, a stronger factory management system is consistently related with higher compliance with disclosed and undisclosed standards and can amplify these improvement and spillover effects of public disclosure.

Our study makes two main contributions to the supply chain transparency literature. Conceptually, in contrast to the current focus on lead-firm transparency (Gustaffson et al 2023) as the means to improved labor conditions in supply chain, we highlight instead how local factors combined with supplier disclosure regimes can make solid improvements in labor conditions, measured by compliance. Using a supplier accountability framework, we highlight the importance of local factors that help hold suppliers accountale: the local media scrutiny of their non-compliances, and the factory's management system.

Our framework explicates a crucial missing link in the implementation of global labor standards on the ground in the context of transparency and disclosure. In effect, public disclosure and local actors in the supply chain is more important than disclosure by lead firms in improving labor conditions. In so doing, we bring in the role of local actors to the current Global North-dominated discourse.

Empirically, our results provide new evidence on a positive spillover effect from public disclosure program to undisclosed standards, even to distant standards not in the same issue domain under public disclosure. This finding helps in the design of disclosure programs, suggesting that focusing on a fewer number of selected standards to disclose is sufficient rather than focusing on a disclosure of all standards. In addition, the broad spillover effects of public disclosure suggests that prior analysis using undisclosed standards as the "control" group (e.g. Robertson 2020) may provide very conservative estimates.

New empirical evidence also includes the significant amplifying effects of local factors/actors—media scrutiny of supplier non-compliances and factory management system in particular—on the impacts of public disclosure. Media expose of supplier non-compliances seems to trigger a trade-off among targeted factories: amplifying improvement on compliance with disclosed standards while weakening improvement on undisclosed distant standards after public disclosure. This may reflect poor factories being exposed by various media but also have limited capability/resources to focus on improving disclosed standards while sacrificing undisclosed areas. Future research may interview factory managers to understand their perceptions and reactions to public disclosure and media exposure.

Similarly, the amplifying effects of factory management system were less certain under different "treatment" assignments (regarding Cambodia). Our assumption—supplier factories with better management system are more capable of improving after public disclosure—may still hold if the new negative moderation effect reflects the improvement among relatively "poorly" managed Cambodian factories. Alternatively, the poorly managed Cambodian factories may find other ways to perform well in assessments under pressure from trade agreements. An overall message here is that factory management system matters, either in the high or low group, and deserves more future research.

Our findings have important practical implications. At the global level, the non-significant effects of lead firm transparency ––measured by Fashion Transparency Index from a prominent promoter of supply chain transparency—suggest a need to rethink the form or assumptions underlying current focus on lead firm transparency, accountability, and effectiveness. Of course, we are limited by the fact that we have only one year of information on buyer names in the BW dataset. This may not be a major concern to the extent that these BW factories supply the same primary buyers over several years, which is not uncommon. Another potential explanation for the nonsignificant effect of lead firm transparency could be that the lead firms' names are not mentioned on BW transparency portal, limiting reputation concern among lead firms. But even in the case of lead firms with a high transparency index, indicating more information on supplier list and potential linkages to the BW transparency portal in their websites/reports, there was no stronger improvement among supplier compliance (i.e. non-significant moderation effects). Perhaps civil society actors are limited by their resources to leverage or link the information disclosed by lead firms and Better Work, suggesting potential weak civil scrutiny of dispersed brand disclosure, a crucial element for lead firm accountability. For stronger scrutiny and lead firm accountability, there might be a need to change the form of current lead firm disclosure to clearly highlight key supplier information (rather than brand procedures). Or, more central disclosure platform and consistent indicators—resembling BW transparency portal—may enhance reputation concern among brands and facilitate civil and government scrutiny.

Locally, it is crucial to consider the roles of local actors in shaping the effectiveness of PDSLS on the ground. Our analysis did not find significant main or amplifying effects of workplace unions. But the moderation effects of unions are close to marginal significance (with p values around 0.14), albeit with much larger p values (e.g. 0.37) in robustness tests. And the two-way fixed effect analysis tends to produce conservative estimates when factory-fixed effect parcels out interesting/meaningful characteristics of the factories (i.e. factories covered by unions throughout the time). And some of the workplace unions in BW factories were hampered in their operation and activities (Li, Kuruvilla, and Bae 2024). We thus take the results not as negating the importance of workplace unions in holding suppliers accountable, rather, these results suggest a need for a stronger role for workplace union in (Better Work's) public disclosure program. This could imply more consultation and voice before and after disclosure (as requested by the unions in Cambodia and Indonesia).

Finally, our findings highlight the crucial role of factory management system in shaping the effects of public disclosure (with significant main and moderation effects). Lead firms or multi-stakeholders may provide capacity building training for supplier factories, beyond current training on the content of Codes of Conduct or specific standards. Activists and policymakers may promote "capacity development for suppliers" as one indicator in brands/retailers' supply chain due diligence reports.

Conclusion

Departing from current activists and policymakers' focus on global companies' public disclosure of supply chain information, this article examines potential roles of local actors in shaping the effectiveness of PDSLS on the ground. To do so, we develop a framework on supplier accountability involving accountability relationship between factory and workers/unions, (media) scrutiny of supplier non-compliances, and factory management system to enforce labor standards. Difference-in-difference analysis of 5,330 Better Work assessments shows that public disclosure caused improvement in compliance with disclosed standards as well as positive spillover into undisclosed areas. Local factors—media scrutiny of supplier non-compliances and factory management system—amplify the effects of public disclosure. In contrast, the often-focused lead firm transparency was not related to improvement in labor compliance; nor does it amplify the effects of PDSLS.

This study is among the first to conceptualize supplier accountability and empirically shows that its major constitutive elements can amplify the improvement and spillover effects of public disclosure. Our findings suggest a need to rethink current form and assumptions underlying lead firm transparency and accountability to improve its effectiveness in supplier workplaces. We call for more attention to local actors in implementing improvements.

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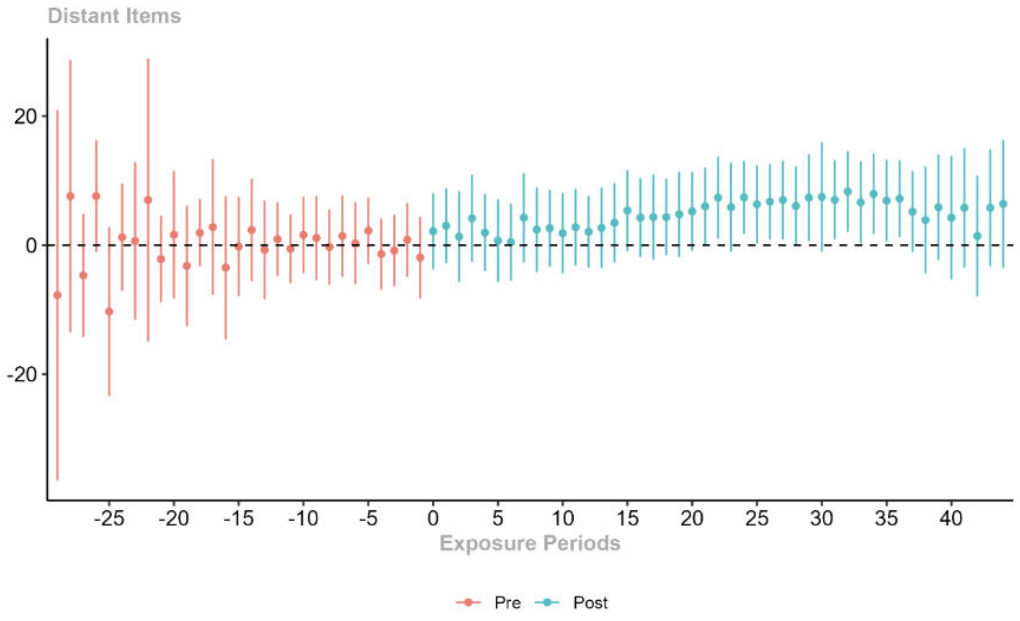
Appendix

▸ Appendix A: 13 items on factory management system

Adequate policies & procedures	Is there an adequate HR policy that is signed by top management with a clear commitment to meet all legal requirements.
	Does the employer have an adequate recruitment procedure.
	Does the employer have adequate grievance handling and dispute resolution procedures.
	Does the employer have adequate disciplinary and termination procedures.
	Is there an adequate emergency preparedness procedure.
Implement	Does the employer adequately communicate and implement HR policies and procedures.
	Does the employer adequately communicate and implement OSH policies and procedures.
Accountability	Employer adequately assign accountability to management for following factory policies and procedures relating to HR management and performance.
	Does the employer adequately assign accountability to management for carrying out health and safety responsibilities.
Investigate risks	Does the employer adequately investigate performance under HR policies and procedures to identify weaknesses and make necessary adjustments.
	Does the employer adequately investigate, monitor and measure OSH issues to identify root causes and make necessary adjustments to prevent recurrence.
	Is there an adequate accident investigation procedure.
	Is there an adequate hazard/risk management and control procedure.

▸ Appendix B. Parallel trends between disclosure and comparison countries on undisclosed distant standards



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