

Firm Compliance and Public Disclosure in Vietnam

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Abstract

Global consumers, international brands, and governments in producing and outsourcing countries aim to improve working conditions in global value chains, but uncertainty exists about what is the best approach. This research uses firm-level data from the International Labour Organization–International Finance Corporation Better Work Vietnam program to assess the relationship between transparency on working conditions and firm compliance in the apparel sector in Vietnam between 2010 and 2018. It exploits a change in the policies of Better Work Vietnam when, in 2015, the program announced the launch of a new public disclosure program that would see factories' names made publicly available along with their compliance (or lack thereof) with certain “critical issues.” The paper first

examines which firm characteristics correlate with reductions in noncompliance rates over time, and then examines the impact of the public disclosure policy on compliance rates and firm dropout using different empirical techniques. It finds that while continued participation in the Better Work Vietnam program has the strongest effect on changes in firm compliance with labor standards over time, public disclosure is also associated with increased compliance, with stronger effects in some compliance points, including occupational health and safety, work time, and child labor. There is some evidence of increased dropout, but no evidence of firms only making progress on the critical issues is found. The research findings suggest that public disclosure within global value chains matters for firm behavior.

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Introduction

Understanding mechanisms to improve working conditions in GVCs is a policy priority for governments in both producing and outsourcing countries, both from a social and economic point of view. Working conditions often fall short of international standards in producing countries. At the same time, a growing number of studies show that better working conditions are positively associated with improvements in profits, productivity, and firm survival (World Bank 2015).

Labor and social standards for firms in GVCs have been introduced in countries to address poor working conditions, but their effectiveness is not fully evident. Moreover, there is limited availability of firm-level evidence about factors that facilitate increased compliance with labor and social standards. This paper helps fill this gap by strengthening the micro-level analysis of firms' compliance with labor standards in Vietnam's apparel sector through one possible policy measure: transparency. The findings support evidence-based policy making.

This research leverages factory-level data from the ILO-IFC Better Work Vietnam program to assess the relationship between transparency of working conditions and firm compliance with labor standards in Vietnam. It exploits a change in the policies of Better Work Vietnam when, in 2015, the launch of a new Public Disclosure Programme was announced that will make factories' names publicly available along with their compliance (or lack thereof) with certain "critical issues". These critical issues include compliance clusters around discrimination, child labor, minimum wage payments, and various aspects of safety and health in the workplace. The primary objective of the Public Disclosure Programme is to accelerate the pace of improvements across the industry, thus raising worker well-being and the industry's reputation for ethical standards (Better Work Vietnam 2015).

We test whether changes in the transparency mechanism through public disclosure in GVCs changes firms' adoption of better practices regarding working conditions. Specifically, the key question around compliance with labor standards in Vietnam that the paper addresses is:

- *Is there evidence that transparency through the Public Disclosure Programme accelerates adoption of compliance requirements? Does this vary by firm characteristics or compliance cluster?* We test whether firms' compliance with labor standards increases after the announcement and/or launch of the Public Disclosure Programme. We then test whether these results vary by firm characteristic or compliance cluster.

The effect of firm participation in monitoring and training programs on compliance has been more widely studied, in particular ILO-IFC Better Factories or Better Work programs, focused largely on Cambodia. We also test whether overall results of the impact of program participation on compliance holds for Vietnam. This helps us to identify the effect of the disclosure policy specifically, rather than program participation generally. In doing so, we address three additional questions:

- *Are there certain characteristics of firms that do not meet compliance requirements?* We test if firms of different size or age are less likely to comply with certain types of compliance clusters (including child labor, contracts, discrimination, forced labor, freedom of association, occupational health and safety, and work time).

- *Are there certain characteristics of firms that adopt compliance requirements?* We test if certain types of firms are more likely to change compliance behavior within certain types of compliance clusters (including child labor, contracts, discrimination, forced labor, freedom of association, occupational health and safety, and work time).
- *In what compliance clusters are firms more likely to adopt compliance requirements during Better Work Vietnam participation?* We test whether firms are more likely to adopt compliance requirements in certain compliance clusters, and whether this varies by firm characteristics.

Finally, to understand additional impacts of the Public Disclosure Programme on firm behavior, we also look at two additional questions, namely:

- *Does transparency shift factory efforts to alternative areas of compliance?* One concern with selecting critical issues to report on is whether firms would only make progress to the critical issues at the expense of other issues. We test whether, after the announcement of the Public Disclosure Programme, firms were less likely to make progress towards compliance in areas outside the 26 critical issues.
- *Does transparency lead some firms to drop out of the program? If so, which ones?* We test whether firm dropout of the Better Work Vietnam program is greater after the announcement of the Public Disclosure Programme, and whether this varies by firm characteristics.

The Public Disclosure Programme publishes factories' names along with their compliance (or lack thereof) with certain "critical issues" on a publicly-available transparency portal.² The transparency portal makes key findings from Better Work assessments public, revealing which factories have been found 'non-compliant' on the critical issues such as occupational safety and health, child labor, forced labor, discrimination, worker compensation, contracts and freedom of association.

A factory's compliance findings remain on the transparency portal until a new Better Work assessment report is published, at which point the site is updated to reflect just the most recent data. The transparency portal is updated continuously and includes information on factory name, factory type, country, assessment date, cycle number and the number of publicly reported issues found not to comply with international labor standards or national law. The findings are published in English.

The 26 critical issues of the Better Work Vietnam's Public Disclosure Programme were approved and announced to all factories in August 2015. The program went into implementation in June 2016, and in April 2017 the first compliance reports within the 26 critical issues were made publicly available when the transparency portal went live.

In our analysis, however, we use the full set of data collected in the Compliance Synthesis Report during unannounced visits where monitoring teams of usually two people carry out an assessment of working conditions in participating factories. This data set is available from 2010 through mid-2018 and includes information on all compliance points, including the 26 critical issues. Data from the Compliance Synthesis Report are subsequently merged with Better Work Vietnam's Registration Document, which contains

² The transparency portal is available at <https://portal.betterwork.org/transparency>.

additional information on firm characteristics including firm size, firm age, and information on buyer relationships.

Although earlier studies analyze similar research questions to those posed in this paper, this paper contributes to the literature in a few notable ways. It is most closely related to Ang et al. (2012) and Robertson (2017), who explored the role of transparency on firm compliance of labor standards in Cambodia. First, we provide additional evidence of this relationship for Vietnam, where earlier findings for Cambodia were inconclusive. Second, participation in ILO-IFC Better Work in Cambodia is mandatory for exporting firms, while in Vietnam participation is voluntary. This allows us to explore how public disclosure impacts compliance in a country where participation is voluntary. Third, we consider additional impacts such as whether transparency leads to shifts in areas of improvement or firm drop out.

In the first part of the analysis, we examine which firm characteristics correlate with noncompliance outcomes as well as changes in noncompliance outcomes over time. To do so, we estimate cross-sectional fixed-effects regressions, controlling for other observable characteristics of the firm. The dependent variable is the noncompliance outcome of a firm for different compliance points.

In the second part of the analysis, we examine the impact of the public disclosure policy on compliance rates using heterogenous effects regressions. It is important to note that no firm in the sample was entirely unaffected by the policy, so we do not have a control group that would allow for causal identification. Instead, this approach compares compliance rates for firms before and after the policy announcement, to study how effective disclosure is conditional on firm characteristics.

We find that while continued participation in the Better Work Vietnam program has the strongest effect on changes in firm compliance with labor standards over time, public disclosure is also associated with increased compliance. Public disclosure appears to have a stronger impact on particular compliance points including occupational health and safety, work time, and child labor. No evidence of firms only making progress on the critical issues is found. Policy implications suggest that public disclosure, at least within global value chains, matters for firm behavior.

Related literature

Firm-level evidence of factors that impact working conditions within global value chains is limited in developing countries. However, several strands of literature look at the relationship between working conditions and trends in global markets, firm performance, monitoring and training programs, and transparency.

Changing conditions in the global apparel market may be one factor that affects the ability or desire for firms to improve working conditions. For example, Rawanpura et al. (2011) describe how the financial crisis, where falling demand increased competitive pressure on exporters, may have made it more difficult for Sri Lankan garment producers to improve working conditions. On the other hand, Beresford (2009) finds that working conditions did not fall in response to an increasingly competitive environment in Cambodia when the MultiFibre Agreement ended at the end of 2004, which effectively increased the number of suppliers that competed directly with each other.

A growing number of studies have taken various approaches to try to identify the relationship between firm performance and working conditions. These studies show that profits, productivity, and firm survival are positively associated with improvements in working conditions and increased compliance with labor standards (World Bank Group, 2015). A discrete-time survival analysis model of 595 Cambodian garment factories by Jetha and Linsen (2015) found that increased compliance with social protection standards was associated with reduced odds of factory closure. A survey of management and laborers in the Lao PDR garment sector found that failure to increase worker well-being led to dissatisfaction, higher labor turnover, lower productivity, and impaired firms' opportunities to strengthen participation in garment GVCs (World Bank, 2012). Brown et al. (2016) demonstrate that garment factories with higher compliance with international labor standards have higher labor productivity and higher profitability. Oka (2012) examines the link between labor standards and supplier competitiveness. The study finds that better labor standard compliance increases suppliers' likelihood of retaining buyers that are reputation-conscious, though it does not drive buyers' sourcing decisions. Other criteria such as price, quality, and delivery time matter more.

Firm participation in monitoring and training programs, in particular ILO-IFC Better Factories or Better Work programs, has been more widely studied. These programs combine monitoring, remediation and training for participating factories. For example, Better Factories Cambodia was shown to be successful at improving compliance with national law and international standards since its implementation in 2001 (Robertson 2017). Other studies have shown a positive relationship between program participation and working conditions in Cambodia (Adler and Woolcock 2010, Beresford 2009, Berik and van der Meulen Rodgers 2010, Miller et al. 2009, Oka 2010a, Oka 2010b, and Polaski 2006). Shea et al. (2010) and Brown et al. (2016) find that the improvements in working conditions and factory compliance come through engagements with multiple stakeholders as part of the program in Cambodia. Bair (2017) show similar results for Nicaragua. This stand of literature relates most closely to the three additional research questions of this paper.

Two papers examine transparency through public disclosure and compliance in Cambodia, which relate most closely to the primary research question of this paper. First, using firm-level data from Cambodia, Ang et al. (2012) find that the end of public disclosure in 2006 adversely affected compliance. The authors also use linear probability modeling to test if compliance in different compliance categories is correlated with a binary indicator during the period of public disclosure. The authors also test for differences in compliance performance of firms that sell to reputationally sensitive buyers. Their results suggest that the threat of public disclosure of noncompliance induces compliance, even in factories lacking reputation sensitive buyers. In the post-public disclosure period, all groups of factories maintained a significant record of compliance, but the propensity for improvement fell.

Second, Robertson (2017) exploit a policy reversal in Cambodia when in 2014 Better Factories Cambodia announced the return to public disclosure to study changes in compliance trends before and after the policy change. The paper evaluates the change in compliance in Cambodian garment factories using different empirical approaches: estimating endogenous trend breaks in compliance, probit regressions, and survival analysis. Overall, the results found in Robertson (2017) are inconclusive. Compliance was generally falling prior to the change. Controlling for year effects in probit regressions, the author finds

that, in general, compliance after the policy change is higher than it may have been otherwise. The results show trend breaks for two categories of compliance – emergency and minimum wages – which changed from a negative trend to a positive trend close to the policy announcement. Other categories of compliance, such as use of safety guards or barriers, showed consistent downward trends that did not seem to change around the time of the policy change. Controlling for variables that may also affect the factory’s compliance decision with Probit regressions, such as number of factory visits, shows no relationship pre- and post-disclosure period with compliance. Only when year effects are controlled for does the compliance in the disclosure period show it is higher than it would otherwise be. Survival analysis, which looks at whether the change to public disclosure changed the propensity to become compliance, instead shows that becoming noncompliant is more likely during the public disclosure period.

Although earlier studies analyze similar research questions to those posed in this paper, this paper contributes to the literature in a few notable ways as noted above. First, we provide additional evidence of the impact of transparency on firm compliance from Vietnam, where earlier findings were inconclusive for Cambodia. Second, earlier research on transparency in Cambodia was undertaken in a country where program participation for exporting firms is mandatory. We instead explore if public disclosure of compliance data might lead to more compliance in a country where participation in Better Work is voluntary for exporting firms. In addition, there is a “Low Compliance” factory list in Cambodia while in other countries, including Vietnam, there is not. The effects of a public disclosure program could be very different when participation is voluntary where, for example, firms can drop out of the program. Third, we consider additional impacts such as whether transparency leads to shifts in areas of improvement or firm drop out.

Public disclosure in Vietnam

Better Work Vietnam was created in 2009 as a partnership between the UN’s International Labour Organization (ILO) and the International Finance Corporation (IFC), a member of the World Bank Group. The program engages with workers, employers, and governments to improve working conditions and boost competitiveness of the garment industry. As of 2018, Better Work Vietnam was working with 524 factories across 59 brands and retailers accounting for 733,000 jobs. The program has conducted over a thousand assessments and advisory visits to help factories identify and improve their working conditions and labor standards. Better Work Vietnam also works with national stakeholders in the Government, Trade Union and Employer’s Organization to build their capacity to support compliance and improvement in the industry and develop practical, evidence-based policies for more effective labor market governance.

In late 2014, Better Work Vietnam started working towards a new policy of public disclosure of the names of firms that failed to meet compliance requirements in select issues deemed critical for working conditions. Consultations first took place with select stakeholders to introduce the concept of the portal in early 2015. Several rounds of consultations took place through a Better Work Vietnam Project Advisory Committee, which included the Ministry of Labour, Invalids and Social Affairs (MOLISA), Vietnam General Confederation of Labour (VGCL) and Vietnam Chamber of Commerce and Industry (VCCI), to finalize the list of critical issues to be reported on. These consultations continued through 2015.

Factory consultations also took place in 2015 through several Better Work factory focus groups in Hanoi and Ho Chi Minh City. Enterprise advisors also communicated the initiative during their advisory visits with factories, and gathered feedback. However, the 26 issues to be reported on had not yet been decided.

In August of 2015, the portal and the 26 issues to be reported on were approved by the Better Work Vietnam Project Advisory Committee. Notification letters were sent out to all factories, which was part of a broader communications package that also included factsheets and FAQs.

Between late-2015 and early-2016 industry seminars were held with Better Work Vietnam member factories in Hanoi and Ho Chi Minh City to further prepare factories for the launch of public reporting. Factories were also frequently reminded by enterprise advisors that public disclosure was coming. As such, it is possible that factories may have started changing their behavior prior to the program implementation. Dialogue of the new policy was also held with buyers. Better Work Global led the buyer consultation process, and Better Work Vietnam reinforced the messages through their regular buyer dialogues, including buyer forums and quarterly calls.

The program went into implementation in June 2016, when factory assessments would start monitoring the 26 critical issues. However, in July 2017 the first compliance reports within the 26 critical issues were made publicly available when the transparency portal was launched. When launched, the portal included non-compliance results on the 26 issues for all factories that had at least a Cycle 2 assessment as of June 2016 or later. There have been no changes to public reporting questions since June 2016, and the list is continuously updated on the portal as newer assessments are completed for each factory.

Given the timeline of the roll-out of the Public Disclosure Programme in Vietnam, we treat August 2015 as the date of Vietnam Public Disclosure Programme announcement, and July 2017 as the date of Public Disclosure Programme implementation. Each factory has at most 3 compliance reports since announcement.³

Factories' names along with their compliance (or lack thereof) with certain "critical issues" are publicly available on the transparency portal.⁴ A factory's compliance findings remains on the transparency portal until a new Better Work assessment report is published, at which point the site is updated to reflect just the most recent data. The transparency portal is updated continuously and includes information on factory name, factory type, country, assessment date, cycle number and the number of publicly reported issues found not to comply with international labor standards or national law. The findings are published in English. Advance searches can be made by factory name, assessment date, compliance cluster, and critical issue.

Methodology

Our hypothesis is that the Vietnam Public Disclosure Program will influence firm compliance, as long as the benefits of improving compliance (retaining buyers or increasing firm performance) outweigh the

³ After the announcement in 2015, 106 firms have had one assessment, 217 have had two assessments, and 35 firms have had three assessments in our data set.

⁴ The transparency portal is available at <https://portal.betterwork.org/transparency>.

costs (changing compliance behavior). As discussed in Ang et al. (2012), the benefits, and thus the impact of the program, could also depend on the reputation sensitivity of the buyer. That is, more reputationally sensitive buyers would be more likely to stop buying for non-compliant firms. In addition, the cost of changing compliance behavior would vary by compliance question. There is therefore no reason to expect that public disclosure will induce compliance equally across all questions. We test this hypothesis using descriptive as well as empirical analysis, differentiating by compliance cluster to allow for heterogeneity in the results.

Graphical analysis

We start the analysis by presenting a graphical overview of trends in the average noncompliance rate of firms that participate in Better Work Vietnam between 2010 and 2018. These include trends in average compliance by year, as well as average compliance by evaluation cycle (duration of participation in the program). We explore these trends across (i) all compliance questions, (ii) compliance questions mapped to broader compliance clusters of child labor, compensation, contracts, discrimination, forced labor, freedom of association, occupational health and safety, and work time, and (iii) compliance questions that fall within the 26 critical issues of public disclosure versus all other non-disclosure compliance questions.

We use the graphical analysis as a first indication of evidence that the introduction of public disclosure impacted firm compliance, by looking for trend breaks around the time of Vietnam Public Disclosure Program announcement and implementation.⁵ However, changes in trends over time could be because firms are changing their behavior in response to the policy change, or because worse / better firms are entering / exiting the Better Work Program, given that participation in the Program is voluntary. As such, a more robust analysis is needed exploiting the firm-level data to distinguish between trends across firms over time and changes within firms. In addition, the graphical analysis helps inform the empirical strategy. For example, the empirical literature suggests that noncompliance falls with program participation. Controlling for valuation cycle in the empirical strategy would then be important, to separately identify the impact of public disclosure from the impact of program participation on firm compliance.

Empirical analysis

To start the analysis of the impact of the Public Disclosure Programme on firm compliance, we first examine which firm characteristics correlate with noncompliance rates as well as within-firm changes of noncompliance rates over time. To do so, we will estimate regressions of the form:

$$Noncompliance_{i,t,s}^c = \alpha + \sum_{n=1}^N \beta_n x_i + \tau + \varepsilon_i \quad (1)$$

or

$$Noncompliance_{i,t,s}^c = \alpha + \sum_{n=1}^N \beta_n x_i + \tau + \omega + \varepsilon_i \quad (2)$$

where $Noncompliance_{i,t}^c$ is the noncompliance rate (equal to 0 if compliance or 1 if noncompliant) of firm i for compliance question s in compliance cluster c during cycle t , α is a constant, x_i is an observable

⁵ Ideally, one would test formally for trend breaks.

characteristic of firm i (such as firm size, firm age, number of reputation-sensitive buyers, etc.), τ are year fixed effects, ω are firm fixed effects, and ε_i is a stochastic error term.

We estimate the regression equations for all compliance questions as the outcome variable of interest. We then estimate the regression equations for only compliance questions that fall within each of the eight compliance clusters as the outcome variable of interest. Both equations are estimated using OLS fixed effects.

Thus, in these specifications, the coefficient estimates β_n measure which firm characteristics n are associated with noncompliance, overall and with a specific compliance cluster. Equation (1) tests which firm characteristics correlate with noncompliance rates, and Equation (2) tests which firm characteristics correlate with within-firm changes in noncompliance rates over time by additionally controlling for firm fixed-effects.

Thus, this part of the analysis allows us to answer the questions:

- *Are there certain characteristics of firms that do not meet compliance requirements (equation 1)?*
- *Are there certain characteristics of firms that adopt compliance requirements over time (equation 2, full sample)?*
- *In what compliance clusters are firms more likely to adopt compliance requirements during Better Work Vietnam participation (equation 2, by compliance cluster)?*

As a first step to explore the key question of this analysis, we then amend equations (2) to be:

$$Noncompliance_{i,t,s}^c = \alpha + \sum_{n=1}^N \beta_n x_i + \tau + \delta POST_t + \gamma CYCLE_{i,t} + \varepsilon_i \quad (3)$$

where $POST$ is a dummy variable equal to 1 if the assessment took place after the public disclosure announcement in August 2015, $CYCLE$ is the number of the cycle assessment (or the length of firm participation), and $BASE$ controls for the firm's compliance at its initial assessment. Firm-level characteristics include firm size and firm age.

We control for the cycle assessment to differentiate between the effect of public disclosure per se and the advisory services that factories receive as part of Better Work. The graphical analysis (below) as well as the literature suggests that the advisory services Better Work offers are effective, whereby firms improve compliance over time. Moreover, the intensity of the advisory services for the "at risk" factories may be higher. By controlling for $CYCLE$, we are better able to identify the effect of public disclosure on firm compliance.

We again estimate the regression equation for all compliance questions as the outcome variable of interest, and then estimate the regression equations for only compliance questions that fall within each of the eight compliance clusters as the outcome variable of interest.

Thus, in equation (3), the coefficient estimate δ measures the change in the non-compliance rate from before to after policy announcement.

We also estimate the regressions for disclosure questions only, to identify whether progress towards compliance of disclosure questions is happening at a faster rate than progress towards compliance of all questions, which would suggest factories are shifting their efforts to ‘teach for the test’.

This part of the analysis allows us to answer the question:

- *Is there evidence that transparency through the Public Disclosure Programme accelerates adoption of compliance requirements? Does this vary by compliance cluster?*
- *Does transparency shift factory efforts to alternative areas of compliance?*

Exploiting the policy change in the disclosure program is therefore the primary identification of the empirical work. Intuitively, this approach compares compliance rates for firms before and after the policy announcement. It shows how effective disclosure is conditional on firm characteristics.

Ideally, we would compare this change against a control group using a difference-in-difference specification that would allow for causal identification. However, it is important to note that no firm in the sample was entirely unaffected by the policy.

For robustness we use an additional specification to also examine the impact of the public disclosure policy on firm compliance. We assume that firms with reputation-sensitive international buyers are more likely to be affected by the public disclosure program, and test whether firms with more reputation-sensitive internal buyers increased compliance more post-program announcement.

Specifically, we will estimate heterogenous effects equations of the form:

$$Noncompliance_{i,t,s}^c = \omega + \tau + \gamma_{it}(TREAT_i * POST_t) + \sum_{n=1}^N \beta_n x_i + \gamma CYCLE_{i,t} + \rho BASE_{i,t} + \varepsilon_{it} \quad (4)$$

where $Noncompliance_{i,t,s}^c$ is the noncompliance rate (equal to 0 if compliance or 1 if noncompliant) of firm i for compliance question s in compliance cluster c during cycle t , ω are firm fixed effects, τ are time fixed effects, $TREAT_i$ is a treatment indicator equal to one for firms affected by the public disclosure policy (e.g. firms with reputation-sensitive international buyers), $POST_t$ is an indicator equal to one for all observations after the program announcement, $BASE_{i,t}$ controls for the firm’s compliance at its initial assessment, x_i is an observable characteristic of firm i , and ε_{it} is a stochastic error term. Firm-level characteristics include firm size, firm age and baseline non-compliance.

Thus, in equation (4), the coefficient estimate γ measures the change in the non-compliance rate from before to after policy announcement conditional on firm characteristics.

We again first estimate this regression using each firm’s overall compliance rate (or compliance with the public disclosure questions) as the outcome of interest. We then estimate the regression using compliance rates for each of the eight compliance clusters as the outcomes of interest. This will enable us to test whether certain types of firms accelerate adoption of compliance requirements, and whether transparency through the Public Disclosure Programme accelerates adoption in some compliance clusters more than others.

As in equation (3), we control for the evaluation cycle, that is, how long a firm has already participated in the program to ensure that the results are not biased by more entry of new firms into the program in certain years. This is important, because in years where more new firms join the program this could worsen average compliance rates for reasons unrelated to the program. Firm-level characteristics include firm size, firm age, and baseline non-compliance. Firm size, firm age, baseline non-compliance, and length of participation in program are all measured as a dummy variable equal to 1 if the firm is above the median value of these variables. This is to be able to also control for firm-level fixed effects.

Thus, this part of the analysis allows us to answer the question:

- *Is there evidence that transparency through the Public Disclosure Programme accelerates adoption of compliance requirements? Does this vary by firm characteristic or compliance cluster?*

Our analysis uses question-level observations as the dependent variable (equal to 0 if compliance or 1 if noncompliance). However, the right-hand side variables are at the firm-level. As robustness, we use the firm-level noncompliance rate as the dependent variable (over). As a second robustness, we use a Probit estimation instead of OLS. The overall results in terms of sign and statistical significance hold for both robustness checks and are available from the author upon request.

Finally, we explore whether transparency is associated with greater dropout following the announcement of the Public Disclosure Programme. To do so, we will estimate regressions of the form:

$$Lastyear_{i,t} = \alpha + \sum_{n=1}^N \beta_n x_i + \tau + \delta POST_t + \gamma Endrate_{i,t} + \varepsilon_i \quad (4)$$

where $Lastyear_{i,t}$ is a dummy variable equal to one if it is the last year t that firm i participated in ILO-IFC Better Work Vietnam, which identifies whether public disclosure is associated with increased dropout. $Endrate$ is the noncompliance rate of the firm in the last year it participated in ILO-IFC Better Work Vietnam, which identifies whether poor-performing firms are more likely to drop out.

Thus, this part of the analysis allows us to answer the question:

- *Does transparency lead some firms to drop out of the program? If so, which ones?*

One limitation with the empirical methodology is that we are not able to fully control for endogeneity. As discussed, prior to public disclosure, firms were advised of the policy change, and low-compliance factories also received notice that they are low-compliance. We find below that firms' baseline non-compliance has a positive correlation with non-compliance over program participation. That is, firms that have lower compliance when they enter the Better Work Vietnam program are more likely to have lower compliance throughout their participation in the program. Endogeneity would then be an issue if low-compliance factories are more at risk of public disclosure. There are other limitations that we acknowledge with the data. The fact that Better Work Vietnam is voluntary raises selection issues that we acknowledge. Though we cannot fully control for these, we do use within-firm estimation and also test for dropout.

Data and descriptive statistics

Data

This paper uses data primarily from Better Work Vietnam’s Compliance Synthesis Report. The compliance data are collected during unannounced visits where monitoring teams of usually two people carry out an assessment of working conditions in participating factories. In Vietnam, the monitoring instrument contains several hundred questions designed to evaluate working conditions relative to national law and international standards. For each question, Better Work Vietnam then decides whether the factory is or is not compliant. Like other studies, this paper relies on Better Work Vietnam’s assessment of compliance and does not re-evaluate their compliance decision (see, for example, Robertson 2017).

An initial compliance assessment is undertaken when a firm first joins Better Work Vietnam. As part of membership in the program, Better Work Vietnam supports the factory through advisory services during the cycle and monitors firm compliance in the cycle. Factory visits and assessments are subsequently undertaken once a year for every year (or cycle) the firm is in the Better Work Vietnam program. The data set thus contains compliance data of a firm over time. The number of assessments per firm varies, depending on when the firm joined (or exited) the Better Work Vietnam’s program. Table 1 shows the factory counts by the maximum number of compliance assessments. A total of 1,508 factory assessments are available for 461 firms.

The data are available starting in 2010 through 2018. The number of factories for which compliance data is available for each year is given in Table 2 (including both new and revisited factories). Data for 2018 run only through June, which explains why the number of factories is smaller in 2018 than other years. Table 3 presents the factory count by evaluation cycle and shows that there are both firms entering and exiting the sample each year.

Table 1: Number of factory assessments per factory

Number of factory assessments	Number of firms
1	124
2	84
3	76
4	63
5	29
6	28
7	33
8	24

Source: Author’s calculations using data from ILO-IFC Better Work Vietnam.

Table 2: Number of assessed factories per year

Year	Number of firms
2010	65
2011	116
2012	136
2013	139
2014	177
2015	219
2016	253
2017	286

Source: Author's calculations using data from ILO-IFC Better Work Vietnam.

Table 3: Factory count by evaluation cycle (number of visits)

Year	1	2	3	4	5	6	7	8
2010	64	1						
2011	64	52						
2012	45	50	41					
2013	19	42	48	30				
2014	71	17	30	42	17			
2015	75	45	20	25	38	16		
2016	41	75	32	24	30	37	14	
2017	62	37	68	24	24	22	39	10
2018	17	17	12	30	3	9	4	14

Source: Author's calculations using data from ILO-IFC Better Work Vietnam.

Questions are grouped into compliance points, and sub-grouped into clusters. The eight clusters are: child labor, discrimination, forced labor, freedom of association and collective bargaining, compensation, contracts and human resources, occupational health and safety, and working time. There are 39 compliance points across the eight clusters. Table A.1 lists the different compliance points under each of the eight clusters.

Moreover, not all questions in the Compliance Synthesis Report are compliance questions. For example, the Compliance Synthesis Report collections information on the number of staff employed by the factory. The data set on firm compliance was restricted to just questions that directly imply compliance. These non-compliance questions were either saved as part of the firm characteristics when appropriate, or dropped. Table A.2 lists the variable names and their definitions available on the Compliance Synthesis Report.

The eight compliance clusters have not changed over time, however the compliance questions asked in the Compliance Synthesis Report have changed. Though changes to the monitoring instrument are needed to accommodate learning and shifting emphasis of working conditions, this creates difficulties in tracking compliance to individual questions over time. Moreover, question codes were also changed, and more frequently than the individual questions (that is, the same questions would be coded differently over time). To maximize comparability of compliance over time, careful attention was given to identifying and using only compliance questions that were available over the entire sample period. The individual compliance questions from each Compliance Synthesis Report were matched manually. The resulting data set contains 161 individual compliance questions that appear consistently throughout the sample period.⁶

Better Work Vietnam identified 26 "critical issues" for which public disclosure would be assessed, listed in Table A.3. The analysis of whether transparency through public disclosure accelerates adoption of compliance requirements focuses on these critical issues. However, not all 26 critical issues have

⁶ Dropping questions that enter or leave the sample introduces potential bias, depending on why questions were added or removed. In some cases, multiple questions were replaced with a single question and vice-versa. As an extension, the average across component questions could be used to measure compliance, following Robertson (2017).

questions that are included in the full sample period. Moreover, given the large number of questions, the assessment does not consider compliance question-by-question. Rather, it focuses on in what clusters / compliance points are firms more likely to adopt compliance requirements, overall and within the 26 critical issues. Table 4 gives the number of compliance questions per cluster, the number of questions that appear consistently throughout the sample period, and the number of public disclosure questions. It shows that the compliance questions are a minority of the total questions in the sample.

Table 4: Number of compliance questions per cluster

Compliance cluster	Total questions	Public disclosure questions	Questions asked consistently
Child Labor	7	2	6
Compensation	40	4	24
Contracts and Human Resources	31	2	15
Discrimination	56	3	35
Forced Labor	18	4	9
Freedom of Association and Collective Bargaining	33	5	18
Occupational Safety and Health	83	7	43
Working Time	26	0	11

Source: Author’s calculations using data from ILO-IFC Better Work Vietnam.

Data from the Compliance Synthesis Report are then merged with firm-level information collected from Better Work Vietnam’s Registration Document. These data are used as control variables in the assessment, including firm size, firm age, and information on buyer relationships. Table A.4 lists the variables names and their definitions available in the Registration Document.⁷

Descriptive statistics

Table 5 shows the mean compliance across all questions and factories without controlling for any other potentially relevant variables. The mean compliance in Table 5 is therefore the simple arithmetic average of the 0/1 compliance variable taken over all questions, all factories and all years. Since 0 indicates compliance (and 1 non-compliance), higher numbers in Table 5 indicate lower average compliance. Overall, firms are found to be non-compliant in about 9 percent of all compliance questions in the Compliance Synthesis Report.

Table 5: Finding of non-compliance

Finding	Frequency	Percent
No evidence of non-compliance found	219,154	91.01
Evidence of non-compliance found	21,650	8.99

Source: Author’s calculations using data from ILO-IFC Better Work Vietnam.

Table 6 shows the average non-compliance rates over time for all compliance questions, as well as for compliance questions that are related and non-related to public disclosure (“critical issue groups”). It also presents the number of firms that are available in the sample for each year. Overall, compliance tends to be lower for disclosure questions than non-disclosure questions, across the sample years. On average,

⁷ We also explored the possibility of merging additional firm-level data from Better Work Vietnam’s Impact Assessment Survey. The firm identifier needed to merge the data sets is currently not available, though we are exploring the possibility of accessing the appropriate identifier.

firms comply with 91 percent of compliance questions, 92 percent of nondisclosure questions, but 88 percent of disclosure questions.

Table 6: Number of firms and mean compliance rates over time

Year	Firms	All	Disclosure	Non-disclosure
2010	65	0.888	0.876	0.890
2011	116	0.911	0.902	0.913
2012	136	0.908	0.902	0.909
2013	139	0.917	0.895	0.921
2014	177	0.901	0.843	0.911
2015	219	0.887	0.834	0.895
2016	253	0.911	0.871	0.918
2017	286	0.922	0.881	0.929
2018	106	0.942	0.876	0.947
All years	457	0.910	0.875	0.916

Source: Author's calculations using data from ILO-IFC Better Work Vietnam.

Table 7 explores the non-compliance rate before and after program announcement, for all compliance questions, all compliance questions that are related to public disclosure, and all compliance questions within each compliance cluster. For now, we limit the analysis of the public disclosure program to focus on the date of program announcement.⁸ The non-compliance rate for all questions and non-disclosure questions are different: 10% versus 13% before the program announcement, and 8% and 12% after the program announcement.

It is also clear that compliance is much higher in some compliance clusters than others. For example, nearly all firms comply with discrimination and forced labor, with non-compliance rates in these clusters of less than 1%. On the other hand, non-compliance within occupational health and safety is near 20%. For working time and contracts and human resources, firms show noncompliance with about 13% of compliance questions within these clusters.

Table 7 also calculates differences in the mean noncompliance rate before and after program announcement, without controlling for any other potentially relevant variables. We find a positive result for all questions, that is, noncompliance has fallen, as well as most compliance clusters. Exceptions are child labor, discrimination and forced labor. In addition, we see initial evidence of a reduction in noncompliance before and after program announcement within compliance questions that relate to public disclosure.⁹

⁸ Testing for changes in compliance around the launch of the public disclosure portal is left for follow-up work, given that only one year of data is currently available post-portal launch.

⁹ Alternatively, we could regress the non-compliance outcome of each compliance question for all firms and all years on a dummy variable equal to one if the compliance visit was post-program announcement.

Table 7: Summary statistics of non-compliance rate

	Before program announcement					After program announcement					Change mean
	mean	median	sd	min	max	mean	median	sd	min	max	
All questions	0.098	0.087	0.061	0	0.379	0.079	0.068	0.054	0	0.360	-0.019
Disclosure	0.132	0.136	0.085	0	0.455	0.118	0.091	0.088	0	0.455	-0.014
Child labor	0.076	0	0.167	0	0.667	0.038	0	0.125	0	0.667	-0.038
Compensation	0.099	0.083	0.099	0	0.667	0.078	0.042	0.091	0	0.583	-0.021
Contracts and human resources	0.136	0.133	0.133	0	0.667	0.132	0.133	0.116	0	0.667	-0.004
Discrimination	0.003	0	0.010	0	0.086	0.003	0	0.014	0	0.229	0
Forced labor	0.001	0	0.009	0	0.111	0.000	0	0.004	0	0.111	-0.001
Freedom of association	0.070	0	0.068	0	0.333	0.034	0	0.050	0	0.556	-0.036
Occupational safety and health	0.190	0.163	0.116	0	0.558	0.150	0.140	0.104	0	0.581	-0.04
Working time	0.135	0.091	0.122	0	0.727	0.134	0.091	0.115	0	0.545	-0.001

Source: Author's calculations using data from ILO-IFC Better Work Vietnam.

Table 8 looks at attrition of firms in the sample. It shows both the number of firms that dropped out that year, as well as the mean non-compliance rate of those firms that dropped out. It also shows the total number of firms, and the dropout rate. It is interesting to note that in 2015, the year of disclosure program announcement, there was a high incidence of poorly performing firms dropping out. The higher number reported for 2017 results from data only being available for half of 2018.

Table 8: Summary statistics of firm attrition

Year	Number of firms	Number of firms dropping out	Dropout rate	Mean noncompliance rate
2010	65	4	0.062	0.162
2011	116	11	0.095	0.094
2012	136	15	0.110	0.102
2013	139	19	0.137	0.110
2014	177	29	0.164	0.144
2015	219	25	0.114	0.179
2016	253	31	0.123	0.132
2017	286	211	0.738	0.084

Source: Author's calculations using data from ILO-IFC Better Work Vietnam.

Note: Attrition is defined as dropping out of the ILO-IFC Better Work Program.

Table 9 provides the summary statistics of the other firm characteristics available in the data set. The average age of firms that participate in the Better Work Vietnam program is about 13 years, though with substantial variation across firms, ranging from only 1 year to more than 50 years in operation. There is also substantial variation across firm size. The largest firm in the sample had more than 15,000 employees, compared to the average of about 1,300 employees.

Table 9: Summary statistics of firm characteristics

	N	mean	p50	sd	min	max
Firm age	454	12.7	12	8.0	1	52
Total employees	458	1314.7	819	1574.1	50	15057
Noncompliance rate at baseline	458	0.125	0.112	0.064	0.012	0.379

Source: Author's calculations using data from ILO-IFC Better Work Vietnam.

Results

Graphical analysis

Figure 1 and Figure 2 present a graphical overview of trends in the average noncompliance rate of firms that participate in Better Work Vietnam between 2010 and 2018. Figure 1 shows trends in average compliance by year, and Figure 2 shows average compliance by valuation cycle (duration of participation in the program). Each graph presents trends for all compliance questions, as well as compliance questions mapped to broader compliance clusters of child labor, compensation, contracts, discrimination, forced labor, freedom of association, occupational health and safety, and work time.

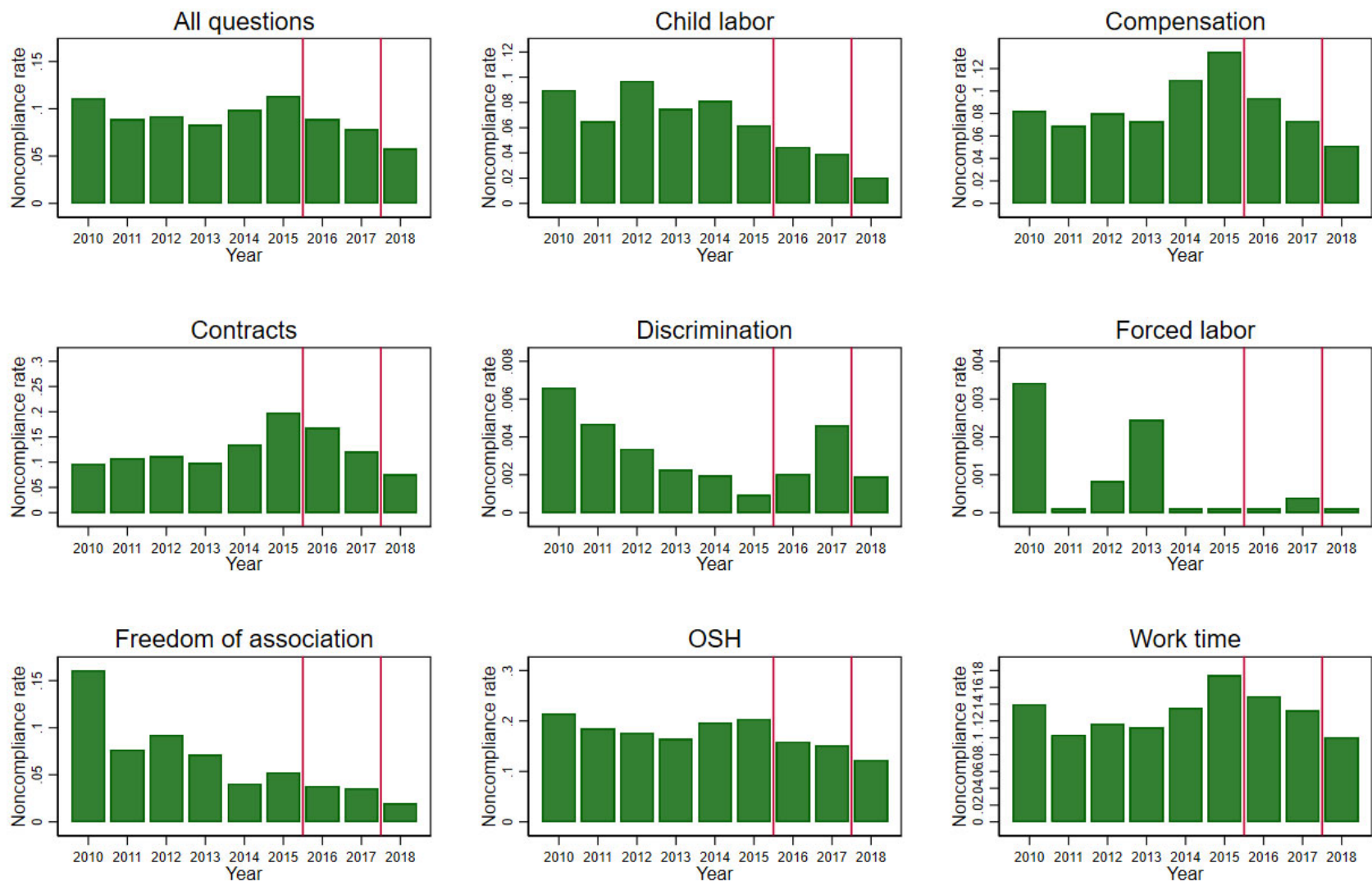
The top left panel of Figure 1 presents some evidence that non-compliance rates are falling soon after the announcement of Better Work Vietnam Public Disclosure Programme. However, this follows increasing trends in non-compliance a few years prior to the program. These trends may or may not be the direct

results of the disclosure policy. For example, other factors could be driving these trends in the data, such as the entry or exit of less-compliant firms into the program before or after the policy announcement.

Trends over time in average non-compliance rates in compensation, contracts, occupational health and safety, work time, and to a lesser extent freedom of association mimic the overall trends – increasing a few years prior to the program, and decreasing in the years after the program announcement. On the other hand, non-compliance with child labor began to decline prior to program announcement, while non-compliance with forced labor shows no clear trend patterns. These results suggest it will be important to differential the empirical results of the Public Disclosure Programme by compliance cluster, given the differences in trends around announcement.

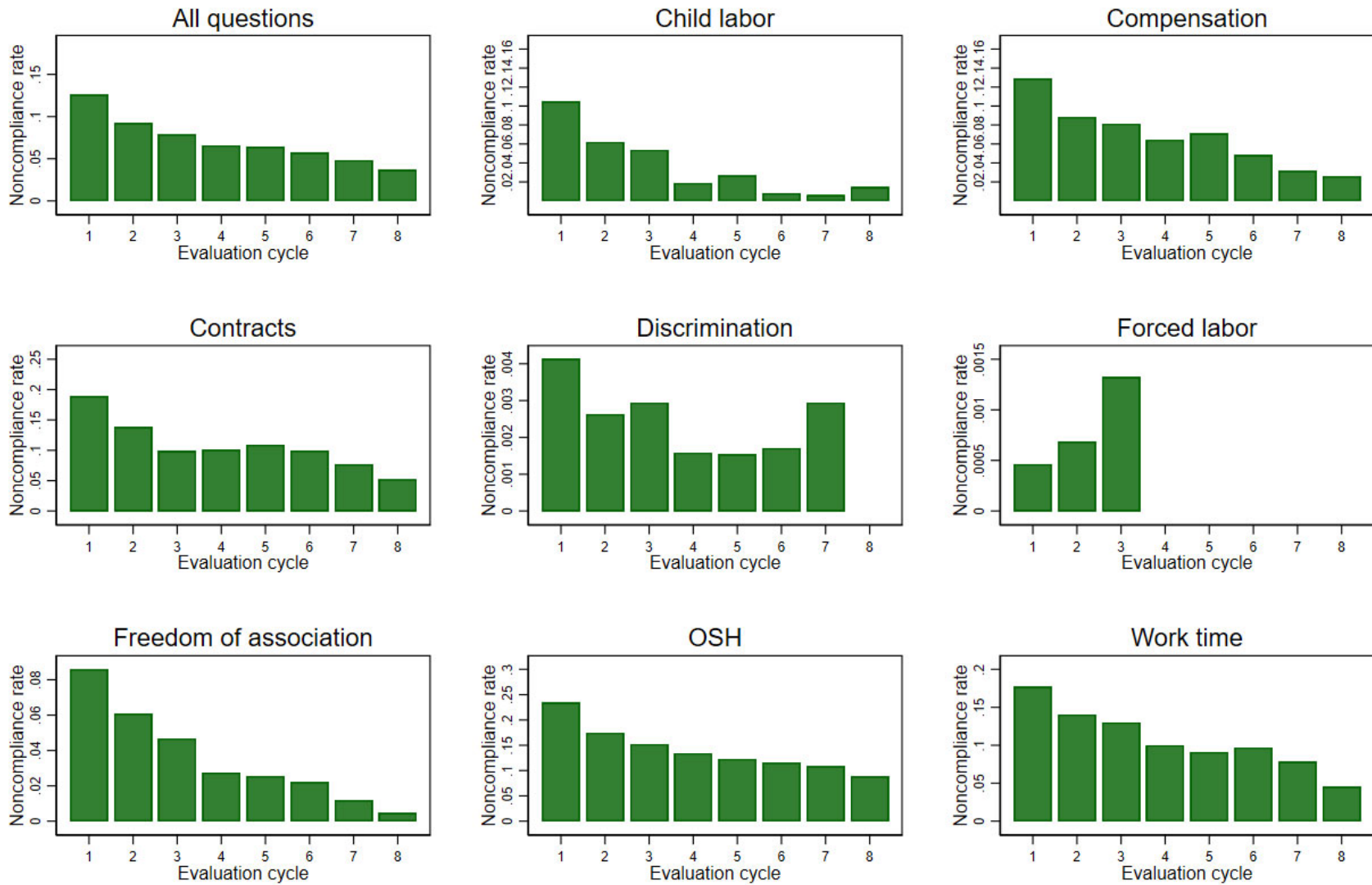
As identified in earlier literature, compliance also tends to improve with program participation. We check this with the Vietnam data, and find similar results. Figure 2 shows that participation in the program appears to be correlated with compliance overall, where noncompliance goes down linearly with participation. Therefore, it will be important to control for duration of program participation for the empirical analysis. Work time, occupational health and safety, freedom of association, and contracts all exhibit steady and declining non-compliance alongside program participation. Non-compliance within the compliance clusters of child labor and forced labor appear to drop off relatively quickly after a firm joins the program, within a few cycles. Non-compliance with the compliance cluster of discrimination shows less clear trends.

Figure 1: Noncompliance rates by year



Source: Author's calculations using data from ILO-IFC Better Work Vietnam.

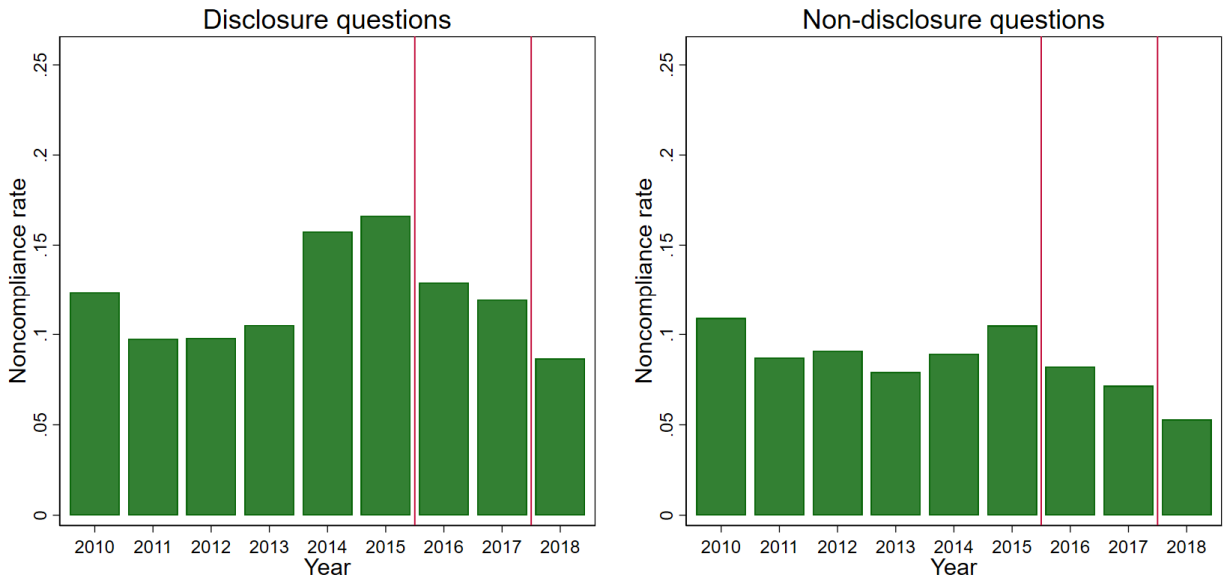
Figure 2: Noncompliance rates by evaluation cycle



Source: Author's calculations using data from ILO-IFC Better Work Vietnam.

The above graphs present results for all compliance questions – not only public disclosure questions. We also look to see whether there are differences in changes in compliance over time for public disclosure questions versus non-public disclosure questions in Figure 3. Though the overall compliance rates tend to be lower for disclosure questions than non-disclosure questions, the trends in average non-compliance rates over time tend to be similar. As above, there is an increase in average non-compliance in the sample in the years prior to the announcement of the non-disclosure program, followed by a decline in non-compliance in the years preceding non-compliance.

Figure 3: Noncompliance rates, disclosure versus non-disclosure questions



Source: Author’s calculations using data from ILO-IFC Better Work Vietnam.

Empirical analysis

First, we test whether there are systematic trends in the characteristics of firms that do not meet compliance requirements. Table 10 presents the regression results of equation (1), for all questions, for only public disclosure questions, and for all questions in each of the eight compliance clusters. Firm size is negatively associated with non-compliance, that is, larger firms tend to be more compliant. This holds across all compliance clusters, with the exception of forced labor.

Though no correlation is found overall, there is some evidence that firm age matters for non-compliance in specific compliance clusters. For child labor, discrimination, and work time, older firms are found to be more compliant. In these categories, firms that are larger (above the median firm size) have higher compliance rates by about 1 percent than firm that are smaller (below the median firm size).

Firms’ baseline non-compliance has a positive correlation with non-compliance over program participation. That is, firms that have lower compliance when they enter the Better Work Vietnam program are more likely to have lower compliance throughout their participation in the program. This also holds when controlling for length of participation in Better Work Vietnam, which has a negative and statistically significant correlation with non-compliance. That is, non-compliance is lower in firms that have been participate in the program longer. These results hold across all compliance points, with the

exception of forced labor. It is interesting to note that the magnitudes of the coefficient is larger for the disclosure questions, meaning that baseline noncompliance and length of program participation have a stronger negative correlation with compliance.

Second, we test whether there are systematic trends in the characteristics of firms that adopt compliance requirements. Table 11 presents the regression results of equation (2), which now controls for firm fixed-effects. As such, the results can be interpreted as the change in compliance within firms over time. There is a negative and significant correlation of firm size with non-compliance for child labor and compensation, meaning that larger firms are more likely to become compliant in these compliance clusters over time. However, there is no relationship overall or with disclosure questions.

There is no significant correlation between firm age and change in compliance within firms, with the exception of the compensation compliance cluster: larger firms are more likely to increase their non-compliance over time.

There is a significant and positive correlation between baseline non-compliance and within-firm change in compliance over time. That is, firms that were less compliant when they entered the program were less likely to increase their non-compliance. This holds for all questions as well as disclosure questions only, in addition to the compliance clusters of compensation, contracts, freedom of association, occupational safety and health, and work time. Length of participation in the program continues to have a negative correlation with changes in non-compliance within-firm.

Third, we test in what compliance clusters firms are more likely to adopt compliance requirements during Better Work Vietnam participation. Table 7 (above) shows that the largest changes in non-compliance were observed in occupational health and safety, child labor, and freedom of association, followed by compensation.

Fourth, we test whether transparency through the Public Disclosure Programme accelerates adoption of compliance requirement, and whether this varies by compliance cluster. Tables 12 and 13 amend the specifications of Tables 10 and 11 by including the dummy variable of whether the Compliance Synthesis Report was undertaken after the announcement of the Public Disclosure Programme, which estimates equation (3). The key result is there the coefficient estimate of the dummy variable POST. A statistically significant and negative coefficient estimate in Table 10 indicates lower non-compliance *across* firms after the announcement of the Public Disclosure Program, controlling for other firm characteristics. A statistically significant and negative coefficient estimate in Table 11, which also includes firm-fixed effects, indicates lower non-compliance *within* firms after the announcement of the Public Disclosure Program.

As above, the results are presented for all questions, for only public disclosure questions, and for all questions in each of the compliance clusters. The same firm-level characteristics are maintained as controls. Tables A.6 and A.7 in the appendix instead present the results of the regression of the change in the firm's non-compliance between the first and last evaluation cycle.

Table 12 shows a negative and statistically significant correlation between non-compliance and public disclosure when the sample includes all compliance questions. The estimated effect is a 3.7 percent lower average non-compliance rate in the period after the announcement of the Public Disclosure Program.

Table 13 shows a stronger within-firm effect for changes in non-compliance after the announcement of the Public Disclosure Program; the estimated effect is a 4.5 percent lower average non-compliance rate within a firm. As such, the results suggest that the Public Disclosure Program is correlated with higher firm compliance.

The coefficient estimate of POST shows a stronger negative correlation with non-compliance in the compliance clusters of freedom of association, occupational health and safety, contracts, work time, and child labor. As such, freedom of association, occupational health and safety, contracts work time, and child labor show the largest fall in non-compliance associated with the Public Disclosure Program. There is no correlation found in the compliance cluster of forced labor.

Table 10: Determinants of non-compliance, between firm

	All categories	Disclosure categories only	Child labor	Compensation	Contracts	Discrimination	Forced Labor	Freedom of association	Occupational safety and health	Work time
Firm size	-0.015*** (0.001)	-0.012*** (0.004)	-0.040*** (0.005)	-0.029*** (0.003)	-0.027*** (0.005)	-0.001** (0.001)	0.000 (0.000)	-0.009*** (0.003)	-0.016*** (0.003)	-0.023*** (0.006)
Firm age	-0.000 (0.001)	-0.001 (0.004)	-0.013** (0.005)	0.002 (0.003)	-0.001 (0.005)	-0.001* (0.000)	-0.000 (0.000)	0.002 (0.003)	0.003 (0.003)	-0.011** (0.005)
Baseline noncompliance	0.078*** (0.002)	0.080*** (0.007)	0.144*** (0.013)	0.125*** (0.007)	0.122*** (0.009)	0.004*** (0.001)	-0.000* (0.000)	0.036*** (0.006)	0.115*** (0.006)	0.104*** (0.011)
Length of participation	-0.035*** (0.001)	-0.042*** (0.004)	-0.031*** (0.005)	-0.035*** (0.003)	-0.067*** (0.005)	-0.000 (0.000)	0.000 (0.000)	-0.025*** (0.003)	-0.061*** (0.003)	-0.051*** (0.006)
Constant	0.119*** (0.003)	0.129*** (0.009)	0.132*** (0.017)	0.095*** (0.008)	0.110*** (0.011)	0.008*** (0.002)	0.003 (0.002)	0.164*** (0.011)	0.221*** (0.008)	0.160*** (0.014)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	No	No	No	No	No	No	No	No	No	No
Observations	240,805	32,934	8,937	35,928	22,455	52,332	13,473	26,946	64,269	16,465
R-squared	0.016	0.017	0.063	0.035	0.038	0.002	0.002	0.024	0.021	0.023

Note: Non-compliance=1. Firm size, firm age, baseline non-compliance, and length of participation in program are all identified as a dummy variable equal to 1 if the firm is above the median. Standard errors in parentheses. * = 10% significance, ** = 5% significance, *** = 1% significance.

Source: Author's calculations using data from ILO-IFC Better Work Vietnam.

Table 11: Determinants of non-compliance, within-firm

	All categories	Disclosure categories only	Child labor	Compensation	Contracts	Discrimination	Forced Labor	Freedom of association	Occupational safety and health	Work time
Firm size	-0.027 (0.031)	-0.051 (0.082)	-0.484*** (0.163)	-0.153* (0.080)	0.010 (0.104)	0.001** (0.000)	0.001 (0.001)	-0.020 (0.065)	-0.064 (0.067)	0.051 (0.116)
Firm age	-0.038 (0.030)	0.085 (0.082)	0.049 (0.162)	0.139* (0.080)	0.010 (0.104)	0.001** (0.000)	0.001 (0.001)	0.035 (0.065)	0.030 (0.067)	0.051 (0.116)
Baseline noncompliance	0.076** (0.030)	0.182** (0.083)	-0.049 (0.162)	0.256*** (0.080)	0.309*** (0.105)	0.001 (0.001)	0.001 (0.001)	0.123* (0.065)	0.160** (0.067)	0.235** (0.117)
Length of participation	-0.014*** (0.002)	-0.014** (0.007)	-0.010 (0.009)	-0.006 (0.005)	-0.037*** (0.008)	0.001 (0.001)	0.000 (0.001)	-0.014*** (0.005)	-0.029*** (0.005)	-0.008 (0.010)
Constant	0.233*** (0.034)	0.174** (0.075)	0.600*** (0.225)	0.193** (0.077)	0.124 (0.090)	0.003 (0.002)	0.000 (0.000)	0.140** (0.056)	0.357*** (0.074)	0.134 (0.089)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	240,805	32,934	8,937	35,928	22,455	52,332	13,473	26,946	64,269	16,465
R-squared	0.029	0.041	0.218	0.073	0.081	0.027	0.028	0.047	0.055	0.069

Note: Non-compliance=1. Firm size, firm age, baseline non-compliance, and length of participation in program are all identified as a dummy variable equal to 1 if the firm is above the median. Standard errors in parentheses. * = 10% significance, ** = 5% significance, *** = 1% significance.

Source: Author's calculations using data from ILO-IFC Better Work Vietnam.

Table 12: Effect of disclosure by firm characteristic, between firm

	All categories	Disclosure categories only	Child labor	Contracts	Discrimination	Forced Labor	Freedom of association	Occupational safety and health	Work time
POST	-0.037*** (0.005)	-0.031 (0.024)	-0.064*** (0.021)	0.150*** (0.013)	-0.005** (0.002)	-0.004 (0.003)	-0.143*** (0.013)	-0.070*** (0.009)	0.003 (0.016)
Firm size	-0.014*** (0.001)	-0.009 (0.006)	-0.049*** (0.006)	-0.030*** (0.005)	-0.001** (0.001)	0.000 (0.000)	-0.009*** (0.003)	-0.016*** (0.003)	-0.024*** (0.005)
Firm age	0.002 (0.001)	0.005 (0.006)	-0.012** (0.006)	-0.002 (0.005)	-0.001* (0.000)	0.000 (0.000)	0.003 (0.003)	0.008*** (0.003)	-0.009* (0.005)
Baseline noncompliance	0.050*** (0.001)	0.028*** (0.006)	0.077*** (0.006)	0.081*** (0.005)	0.002*** (0.001)	0.000 (0.000)	0.025*** (0.003)	0.083*** (0.003)	0.056*** (0.005)
Length of participation	-0.043*** (0.002)	-0.033*** (0.006)	-0.044*** (0.006)	-0.087*** (0.006)	0.000 (0.001)	0.000 (0.000)	-0.028*** (0.003)	-0.064*** (0.003)	-0.057*** (0.006)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	No	No	No	No	No	No	No	No	No
Observations	209150	3004	7465	20671	48001	12016	24032	77959	17504
R-squared	0.015	0.031	0.058	0.05	0.001	0.002	0.029	0.025	0.023

Note: Non-compliance=1. Firm size, firm age, baseline non-compliance, and length of participation in program are all identified as a dummy variable equal to 1 if the firm is above the median. Standard errors in parentheses. * = 10% significance, ** = 5% significance, *** = 1% significance.

Source: Author's calculations using data from ILO-IFC Better Work Vietnam.

Table 13: Effect of disclosure by firm characteristic, within firm

	All categories	Disclosure categories only	Child labor	Contracts	Discrimination	Forced Labor	Freedom of association	Occupational safety and health	Work time
POST	-0.046*** (0.005)	-0.060** (0.026)	-0.094*** (0.024)	0.106*** (0.017)	-0.006** (0.002)	-0.003 (0.002)	-0.141*** (0.014)	-0.105*** (0.011)	-0.081*** (0.022)
Firm size	0.052* (0.028)	-0.473* (0.272)	0.047 (0.036)	0.035 (0.102)	-0.009 (0.016)	0.003 (0.002)	-0.034 (0.089)	0.027 (0.059)	-0.016 (0.127)
Firm age	0.009 (0.028)	0.027 (0.272)	0.060* (0.035)	-0.068 (0.102)	-0.017 (0.015)	0.000 (0.000)	-0.04 (0.089)	0.05 (0.059)	-0.016 (0.127)
Baseline noncompliance	0.046 (0.028)	0.033 (0.273)	-0.060* (0.035)	0.003 (0.102)	-0.014 (0.015)	0.000 (0.000)	0.04 (0.089)	0.043 (0.059)	0.107 (0.127)
Length of participation	-0.018*** (0.003)	-0.016* (0.008)	-0.013 (0.010)	-0.044*** (0.009)	0.001 (0.001)	0.000 (0.001)	-0.017*** (0.006)	-0.028*** (0.005)	-0.012 (0.009)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	209150	3004	7465	20671	48001	12016	24032	77959	17504
R-squared	0.029	0.245	0.256	0.096	0.024	0.035	0.053	0.056	0.071

Note: Non-compliance=1. Firm size, firm age, baseline non-compliance, and length of participation in program are all identified as a dummy variable equal to 1 if the firm is above the median. Standard errors in parentheses. * = 10% significance, ** = 5% significance, *** = 1% significance. Source: Author's calculations using data from ILO-IFC Better Work Vietnam.

We continue to explore whether transparency through the Public Disclosure Program accelerates firm compliance, and whether this varies by firm characteristic, using an alternative specification. Table 14 presents the regression results of equation (4). The results show how effective disclosure is conditional on different firm characteristics, by interacting the variable POST with each of the firm characteristics.

The results in column (5) show that the disclosure program continues to have a negative relationship with non-compliance, where the coefficient estimate of POST is significant and negative. We find that this negative relationship between non-compliance and the public disclosure program is stronger for larger firms, given by the significant and negative interaction of POST with firm size. The negative relationship is also stronger for firms that had a higher non-compliance rate during their first evaluation. We find no evidence that firm age interacts with the impact of public disclosure on firm compliance. The interaction between the length of participation in ILO-IFC Better Work Vietnam and the non-disclosure period is instead positive, suggesting that firms that participating longer in the program in the non-disclosure period are slower to improve compliance, conditional on other firm characteristics.

Table 14: Effect of disclosure by firm characteristic, heterogenous effects

	(1)	(2)	(3)	(4)	(5)
POST	0.011** (0.005)	0.019*** (0.005)	-0.023*** (0.005)	0.014*** (0.004)	-0.009* (0.005)
Firm size * POST	0.001 (0.003)				-0.006** (0.003)
Firm age * POST		0.002 (0.003)			-0.004 (0.003)
Length of participation * POST			0.041*** (0.003)		0.025*** (0.003)
Baseline noncompliance * POST				-0.017*** (0.003)	-0.015*** (0.003)
Firm size	-0.017*** (0.002)				-0.010*** (0.002)
Firm age		0.007*** (0.002)			0.004* (0.002)
Length of participation			-0.118*** (0.005)		-0.054*** (0.002)
Baseline noncompliance				0.057*** (0.002)	0.056*** (0.002)
Test: $x * POST + x + POST = 0$	0.91 0.34	32.12 0.00	327.33 0.00	139.68 0.00	
Year FE	Yes	Yes	Yes	Yes	Yes
Evaluation cycle FE	Yes	Yes	Yes	Yes	Yes
Observations	209150	209150	209150	209150	209150
R-squared	0.011	0.011	0.011	0.017	0.016

Note: Non-compliance=1. Standard errors in parentheses. * = 10% significance, ** = 5% significance, *** = 1% significance.

Source: Author's calculations using data from ILO-IFC Better Work Vietnam.

Fifth, does transparency shift factory efforts to alternative areas of compliance? One concern is whether the Public Disclosure Program incentivizing firms to shift efforts towards the disclosure questions at the expensive of other compliance areas. We test this by estimating equation (3) for the disclosure questions only, presented in Tables 12 and 13. The results do not show evidence that firms are improving more on the disclosure questions than the non-disclosure questions in the post-disclosure period. In Table 12 (between firm), the estimated coefficient of POST is nearly identical for disclosure questions and all questions (though not statistically significant in the latter). In Table 13 (within firm), there is some

evidence that disclosure categories react slightly more than the other categories, but the difference is not significant and small in magnitude. This supports the descriptive statistics that similarly do not show greater improvements in the disclosure categories than overall (either before/after program announcement or when looking at changes between first/last evaluation cycle, in Table 7 and Table A.5, respectively). In fact, the raw means suggest that there is less improvement for the disclosure questions than the other questions.

Sixth, we explore whether transparency leads some firms to drop out of the program. Table 15 tests for factors correlated with firm attrition, including firm size, firm age, baseline non-compliance, the non-compliance rate of the last compliance assessment, as well as the Public Disclosure Program. There is some evidence that firms are more likely to drop out of ILO-IFC Better Work Vietnam after the announcement of the Public Disclosure Program than before. There is a positive and statistically significant correlation between the variable POST and firm attrition, though the coefficient is relatively small in magnitude. This holds when also controlling for firm size, firm age, and baseline non-compliance.

Non-compliance rates are also a strong overall predictor of dropping out of the program; we find evidence that firms with higher non-compliance rates in their last compliance cycle are more likely to drop out of ILO-IFC Better Work Vietnam. This suggests that the average trends in non-compliance rates over time may be influenced by firms dropping out of the program. Larger firms are also less likely to drop out, suggesting that they have more to gain from successfully participating in the program. Current evidence therefore shows previous compliance performance remains the strongest predictor of whether a firm drops out of the programme, but public disclosure seems to add to that effect.

Table 15: Determinants of attrition

	(1)	(2)	(3)	(4)	(5)
Non-compliance rate in t-1	1.610*** (0.133)		1.527*** (0.146)		1.505*** (0.138)
POST		0.290*** (0.023)		0.289*** (0.023)	0.287*** (0.022)
Firm size			-0.079*** (0.024)	-0.142*** (0.022)	-0.086*** (0.022)
Firm age			-0.046** (0.022)	-0.03 (0.022)	-0.017 (0.021)
Baseline noncompliance			-0.023 (0.024)	0.060*** (0.022)	-0.027 (0.022)
Test: $x * POST + x + POST=0$	0.91 0.34	32.12 0.00	327.33 0.00	139.68 0.00	
Year FE	No	No	No	No	No
Observations	1386	1386	1386	1386	1386
R-squared	0.099	0.111	0.109	0.147	0.217

Note: Firm drops out=1. Standard errors in parentheses. * = 10% significance, ** = 5% significance, *** = 1% significance.

Source: Author's calculations using data from ILO-IFC Better Work Vietnam.

Conclusions

This research leveraged factory-level data on compliance from the ILO-IFC Better Work Vietnam program to assess the relationship between transparency on working conditions and firm compliance of labor standards in Vietnam. It exploited a change in the policies of Better Work Vietnam when, in 2015, the

program announced the launch of a new public disclosure program that will make factories' names publicly available along with their compliance (or lack thereof) with certain "critical issues".

We first examined which firm characteristics correlate with noncompliance outcomes as well as reductions in noncompliance outcomes over time using cross-sectional fixed-effects regressions. We then examined the impact of the public disclosure policy on compliance rates using heterogenous effects regressions. We also tested whether the public disclosure policy had an impact on firm drop-out.

It found that while continued participation in the Better Work Vietnam program has the strongest effect on changes in firm compliance with labor standards over time, public disclosure is also associated with increased compliance. Public disclosure appears to have a stronger impact on particular compliance points including occupational health and safety, work time, and child labor, where we found a stronger correlation between compliance and the public disclosure period in these compliance clusters. No evidence of firms only making progress on the critical issues is found. Policy implications suggest that public disclosure, at least within global value chains, matters for firm behavior.

References

- Adler, D., and M. Woolcock (2010). "Justice without the Rule of Law? The challenge of rights-based industrial relations in contemporary Cambodia." In *Human Rights at Work: Perspectives on Law and Regulation*, ed. C. Fenwick and T. Novitz. Oxford: Hart Publishing.
- Ang, D., C. Brown, R. Dehejia, R. Robertson (2012). "Public Disclosure, Reputation Sensitivity, and Labor Law Compliance: Evidence from Better Factories Cambodia." *Review of Development Economics* 16(4): 594-607.
- Bair, J. (2017). "Contextualising Compliance: Hybrid governance in global value chains." *New Political Economy* 22(2): 169-85.
- Beresford, M. (2009). "The Cambodian Clothing Industry in the post-MFA Environment: A review of developments." *Journal of the Asia Pacific Economy* 14(4): 366-88.
- Berik, G., and Y. van der Meulen Rodgers (2010). "Options for Enforcing Labour Standards: Lessons from Bangladesh and Cambodia." *Journal of International Development* 22: 56-85.
- Better Work Vietnam (2015). Newsletter No. 12, Sep 2014 – Jan 2015. Ho Chi Minh City, Vietnam.
- Brown, D., R. Dehejia, A. Rappaport, M. Davis, R. Robertson, L. Babbitt, and E. Voegeli (2016). "The Impact of Better Work." ILO, Geneva.
- Jetha, Q., and J. Linsen (2015). "Survival of the Fittest – And Most Compliant: Evidence on the relationship between firm survival and social protection compliance." Better Work Discussion Paper Series No. 19, ILO, Geneva.
- Miller, D., V. Nuon, C. Aprill, and R. Certeza (2009). "Business as Usual? Governing the supply chain in clothing - post MFA phase-out: The case of Cambodia." *International Journal of Labor Research* 1(1): 10-33.
- Oka, C. (2010a). "Accounting for the Gaps in Labour Standard Compliance: The role of reputation-conscious buyers in the Cambodian garment industry." *European Journal of Development Research* 22(1): 59-78.
- Oka, C. (2010b). "Channels of Buyer Influence and Labor Standard Compliance: The case of Cambodia's garment sector." *Advances in Industrial and Labor Relations* 17(1): 153-83.
- Polaski, S. (2006). "Combining Global and Local Forces: The case of labor rights in Cambodia." *World Development* 34(5), 919-32.
- Ruwanpura, K, and N. Wrigley (2011). "The Costs of Compliance? Views of Sri Lankan apparel manufacturers in times of global economic crisis." *Journal of Economic Geography* 11(6): 1–19.
- Robertson, R. (2017). "Lights On: Public disclosure and compliance: evidence from Better Factories Cambodia." Mimeo. The Bush School of Government and Public Services, Texas A&M University, College Station, Texas.

World Bank (2015). "Interwoven: How the Better Work Program improves job and life quality in the apparel sector." Washington, DC.

Appendix

Table A.1: Clusters and compliance points

Cluster	Compliance Point
Child Labor	Child Laborers
	Hazardous Work and other Worst Forms
	Documentation and Protection of Young Workers
	Hazardous Work
Discrimination	Unconditional Worst Forms
	Race and Origin
	Religion and Political Opinion
	Gender
Forced Labour	Other Grounds
	Coercion
	Bonded Labor
	Forced Labor and Overtime
Freedom of Association and Collective Bargaining	Prison Labor
	Union Operations
	Interference and Discrimination
	Collective Bargaining
Compensation	Strikes
	Minimum Wages/Piece Rate Wages
	Overtime Wages
	Premium Pay
Contracts and Human Resources	Method of Payment
	Wage Information, Use and Deduction
	Paid Leave
	Social Security and Other Benefits
Occupational Safety and Health	Employment Contracts
	Contracting Procedures
	Termination
	Dialogue, Discipline and Disputes
Working Time	OSH Management Systems
	Chemicals and Hazardous Substances
	Worker Protection
	Working Environment
	Welfare Facilities
	Health Services and First Aid
	Worker Accommodation
	Emergency Preparedness
	Regular Hours
	Overtime
	Leave

Source: ILO-IFC Better Work Vietnam.

Table A.2: Variable names and definitions, Compliance Synthesis Report

Variable name	Variable definition
Country	Vietnam
FactoryAssessedID	Unique identifier of the factory
FactoryAssessedName	
CurrentFactoryID	Unique identifier of the factory
CurrentFactoryName	
AssesmentStartDate	The date from which an announced compliance assessment begins, day / month / year
QuestID	Questionnaire ID, unique for each assessment (CurrentFactoryID and AssessmentStartDate)
Cluster	One of eight compliance clusters: child labor, discrimination, forced labor, freedom of association and collective bargaining, compensation, contracts, occupational health and safety, working time
CP	Compliance points, nested within cluster
ParentQuestion	
OriginalQuestionID	
QuestionID	Unique to QLabel
QLabel	Individual question on the compliance assessment tool, nested within compliance points
QuestionStatus	Active or Inactive
Questiontype	FGW (question for information only) or NCQ (non-compliance question)
Finding	For each NCQ, 1=non-compliance, 0=no evidence of non-compliance found / compliant
Cycle	Represents the sequential order of assessment in a factory. Cycle 1 = a factory's first compliance assessment; Cycle 2 = a factory's second compliance assessment; etc. Assessments occur approximately every 12 months, so Cycle 3 would correspond roughly to the 3 rd year of participation in the program.
BuyerId	Unique ID of the buyer
Noncompliancerate ofemployees	Number of employees
Tags	
EA1	Name of the first Enterprise Advisor
EA2	Name of the second Enterprise Advisor
Approver	Name of the Approver
ApprovalDate	Generally about one month after the assessment
TQName	
TQRef	
TQStatus	
GuidanceNote	Guidance to Enterprise Advisors on how to assess compliance vs. non-compliance
LegalReference	
FindingText	Any additional detail provided by Enterprise Advisors

Source: ILO-IFC Better Work Vietnam.

Table A.3: The 26 “critical issues” for which public disclosure is assessed

Punishing workers for participating in a strike
Requiring workers to join a union
Payment for overtime
Fire detection and alarm system
Implementation of collective agreement
Limits on the use of fixed term contracts
Accessible unobstructed and/or unlocked emergency exits during working hours including overtime
Mechanisms to ensure cooperation between workers and management on OSH matters
Free exit from the workplace at all times including during overtime
Gender discrimination (conditions of work)
Payment for maternity leave
Providing drinking water
Punishment of unionists
Workers under the legal age for employment under national law
Sexual Harassment
Periodic emergency drills
Bullying harassment or humiliating treatment of workers
Payment of minimum wage for regular workers
Termination or non-renewal of worker's employment contract due to union membership or activities
Informing workers about wage payments and deductions, Thematic
Forced overtime under threat of penalty, Thematic
Terminating workers who were pregnant or on maternity leave or forcing them to resign
Number of emergency exits
Actions to assess monitor prevent and/or limit workers' exposure to hazardous chemicals
Employer involvement in union decisions constitution rules activities admin finances or elections

Source: ILO-IFC Better Work Vietnam.

Table A.4: Variable names and definitions, Registration Document

Variable name	Variable definition
ID	Unique identifier of the factory
Original factory ID	
Division	Sector of company (manufacturing)
City	City of operation
Zip code	
State	
Country	Vietnam
Peer group enabled	
City of ownership	City of ownership company
Country of ownership	Country of ownership company
Age	In what year did the supplier begin operation in the country
Total employees	
Male employees	
Female employees	
First product	
Second product	
Customer 1/2/3 – Length of business relationship	
Customer 1/2/3 – Preferred supplier	
Customer 1/2/3 – Contractor	
Customer 1/2/3 – Subcontractor	

Source: ILO-IFC Better Work Vietnam.

Table A.5: Summary statistics for non-compliance rate

	First evaluation cycle					Last observed evaluation cycle					Change
	mean	median	sd	min	max	mean	median	sd	min	max	mean
All questions	0.132	0.118	0.064	0	0.379	0.079	0.068	0.057	0	0.360	0.075
Disclosure	0.167	0.136	0.088	0	0.455	0.119	0.091	0.089	0	0.455	0.079
Child labor	0.120	0	0.201	0	0.667	0.049	0	0.143	0	0.667	-0.023
Compensation	0.135	0.125	0.117	0	0.667	0.078	0.042	0.094	0	0.542	0.040
Contracts and human resources	0.190	0.133	0.152	0	0.667	0.119	0.067	0.114	0	0.667	0.075
Discrimination	0.004	0	0.013	0	0.086	0.004	0	0.017	0	0.229	-0.013
Forced labor	0.001	0	0.008	0	0.111	0.000	0	0.006	0	0.111	-0.005
Freedom of association	0.096	0.111	0.075	0	0.333	0.034	0	0.055	0	0.556	0.041
Occupational safety and health	0.247	0.233	0.116	0	0.558	0.154	0.140	0.104	0	0.581	0.143
Working time	0.174	0.182	0.138	0	0.727	0.131	0.091	0.115	0	0.545	0.043

Source: Author's calculations using data from ILO-IFC Better Work Vietnam.

Table A.6: Determinants of changes in non-compliance rate, first to last cycle

	All categories	Disclosure categories only	Child labor	Compensation	Contracts	Discrimination	Forced Labor	Freedom of association	Occupational safety and health	Work time
Firm size	-0.011*** (0.000)	-0.017*** (0.001)	0.026*** (0.004)	-0.017*** (0.001)	-0.016*** (0.002)	-0.001*** (0.000)	-0.000*** (0.000)	-0.015*** (0.001)	-0.023*** (0.001)	0.001 (0.002)
Firm age	-0.005*** (0.000)	-0.017*** (0.001)	0.006 (0.004)	0.003*** (0.001)	-0.000 (0.001)	-0.002*** (0.000)	-0.000* (0.000)	-0.012*** (0.001)	-0.017*** (0.001)	0.014*** (0.002)
Baseline noncompliance	-0.078*** (0.000)	-0.071*** (0.002)	-0.162*** (0.009)	-0.090*** (0.002)	-0.142*** (0.003)	-0.009*** (0.000)	-0.000 (0.000)	-0.029*** (0.001)	-0.135*** (0.001)	-0.056*** (0.003)
Length of participation	-0.019*** (0.000)	0.003** (0.001)	-0.040*** (0.004)	-0.007*** (0.001)	0.016*** (0.002)	-0.005*** (0.000)	-0.001*** (0.000)	-0.062*** (0.001)	-0.032*** (0.001)	-0.018*** (0.002)
Constant	-0.036*** (0.000)	-0.010*** (0.002)	-0.071*** (0.010)	-0.021*** (0.002)	0.009** (0.004)	-0.002*** (0.000)	-0.003*** (0.001)	-0.100*** (0.002)	-0.056*** (0.002)	-0.067*** (0.004)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	No	No	No	No	No	No	No	No	No	No
Observations	339,344	36,392	9,125	48,079	34,881	69,074	19,275	36,832	92,845	29,233
R-squared	0.177	0.079	0.072	0.093	0.122	0.052	0.015	0.165	0.138	0.022

Note: Non-compliance=1. Firm size, firm age, baseline non-compliance, and length of participation in program are all identified as a dummy variable equal to 1 if the firm is above the median. Standard errors in parentheses. * = 10% significance, ** = 5% significance, *** = 1% significance.

Source: Author's calculations using data from ILO-IFC Better Work Vietnam.

Table A.7: Determinants of changes in non-compliance rate, first to last cycle

	All categories	Disclosure categories only	Child labor	Compensation	Contracts	Discrimination	Forced Labor	Freedom of association	Occupational safety and health	Work time
Firm size	-0.016*** (0.000)	0.045*** (0.000)	0.000 (0.000)	-0.042*** (0.000)	0.033*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	-0.028*** (0.000)	-0.012*** (0.000)	-0.091*** (0.000)
Firm age	-0.016*** (0.000)	0.045*** (0.000)	-0.000*** (0.000)	-0.042*** (0.000)	0.033*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	-0.028*** (0.000)	-0.012*** (0.000)	-0.091*** (0.000)
Baseline noncompliance	0.016*** (0.000)	-0.045*** (0.000)	0.000 (0.000)	0.042*** (0.000)	-0.033*** (0.000)	-0.000*** (0.000)	-0.000** (0.000)	0.028*** (0.000)	0.012*** (0.000)	0.091*** (0.000)
Length of participation	-0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	-0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)
Constant	0.000*** (0.000)	0.000*** (0.000)	-0.000** (0.000)	-0.000*** (0.000)	0.000*** (0.000)	-0.000*** (0.000)	0.000*** (0.000)	-0.000*** (0.000)	0.000*** (0.000)	-0.000*** (0.000)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	339,344	36,392	9,125	48,079	34,881	69,074	19,275	36,832	92,845	29,233
R-squared	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

Note: Non-compliance=1. Firm size, firm age, baseline non-compliance, and length of participation in program are all identified as a dummy variable equal to 1 if the firm is above the median. Standard errors in parentheses. * = 10% significance, ** = 5% significance, *** = 1% significance.

Source: Author's calculations using data from ILO-IFC Better Work Vietnam.