Regulating labor standards via supply chains: Lessons from a public / private approach to intervention

David Weil and Carlos Mallo, Boston University

Contact information:

Professor David Weil
Boston University School of Management
595 Commonwealth Avenue, Room 520A
Boston, MA 02215
davweil@bu.edu

Prepared for "Conference on Institutional Mechanisms for Industry Self-Regulation"
Tuck School of Business, Dartmouth College, February 24-25, 2006.

Acknowledgements: This research was supported by a contract from the U.S. Department of Labor, Wage and Hour Division. We are grateful to Rae Glass, Libby Hendrix, Jerry Hall, Bruce Sullivan, and Kim Fung of the Wage and Hour Division for their insights and provision of data for this paper. We are also grateful to Amanda Pyles, Shulamit Kahn, and seminar participants at Boston University, the Wharton School of Business, University of Pennsylvania, and the John F. Kennedy School of Government, Harvard University for comments on this paper.

Regulating labor standards via supply chains: Lessons from a public / private approach to intervention

Word count (not including tables): 7965

Abstract

The debate on global labor standards has in recent years led to a profusion of non-governmental forms of regulation. Systematic evaluation of these systems has been very limited to date. This paper empirically explores the effects of an innovative system to regulate labor standards in the U.S. garment industry that combines public enforcement power and private monitoring, thereby drawing on different elements of global labor standards systems. We examine the impact of this system over time and in two distinct markets on employer compliance with minimum wage laws. We find that these initiatives substantially reduced minimum wage violations and improved incentives to comply over time. This case therefore offers a useful model for international labor standards regulatory systems.

1. Introduction

The advisability and impact of efforts to regulate global labor standards remain extremely contentious topics. Fundamental aspects of that debate remain open including the appropriate definition of labor standards, the merits of linking labor standards to trade agreements, and the determinants of who actually wins and loses after the imposition of standards. A second set of questions revolves around the efficacy of the largely private, non-governmental systems that have emerged for regulating labor standards. Do these systems—ranging from voluntary codes of conducts created by individual companies or groups representing different stakeholders, to privatized monitoring and inspection systems—ultimately improve conditions at covered factories and workplaces? Do they have spillover effects on non-covered workplaces? Are they sustainable over the long term?

The latter questions are particularly compelling given the proliferation of nongovernmental systems of global labor standards over the past decade. Most approaches involve private organizations and NGOs operating in a variety of ways to monitor factories and suppliers. The absence of detailed or comparable data from these efforts has for the most part precluded a systematic evaluation of relative effectiveness, so the debate regarding the merits of different approaches has been limited to comparing cases on a more qualitative basis or looking at outcome measures for only suppliers overseen by those systems.

This paper seeks to provide insight into these questions by empirically examining the impact of an innovative form of regulation in the U.S. garment industry that combines government enforcement and private monitoring. Controlling labor standards in apparel

has been a perennial problem in the U.S. as it has been throughout the world. In the mid-1990s, the U.S. Department of Labor's Wage and Hour Division, the government agency in charge of enforcing the federal minimum wage and overtime law, began an initiative that uses the agency's ability to interrupt the flow of goods from manufacturers to retailers as a means of establishing private, manufacturer-level monitoring of their subcontractors.

The Department of Labor's effort to regulate labor standards offers a unique model of combining the benefits of private monitoring with the virtues of a public enforcement system. Even though it is a U.S.-based system, this novel arrangement sheds light on the larger problem of regulating global labor standards in a number of ways. First, it provides a unique case of a system that utilizes both public and private regulatory mechanisms. Second, the approach has been applied to the same industry—apparel—that has been the focus of international efforts to regulate labor standards. Third, the effort has continued over a number of years and in several different markets. Finally, evaluations of global labor standards have been unable for the most part to quantitatively gauge their impacts on workplace outcomes. In this paper, we directly measure the impact of the system on labor standards outcomes—compliance with minimum wage standards—in two different markets and over several years, using data from a random survey of apparel contractors that includes companies that are monitored and companies not monitored by the system.

We begin with a brief discussion of the spectrum of non-governmental mechanisms currently employed to regulate global labor standards. We then place the regulatory strategy employed by the U.S. Department of Labor within that spectrum.

After a description of the data sets and methodology, we estimate the effects of the monitoring system on the behavior of subcontractors in two different apparel markets and over time. We then evaluate how two factors—(1) the direct effect of manufacturer monitoring on contractor behavior and (2) the effect of manufacturer selection of subcontractors—contribute to the overall monitoring effects. We conclude with a discussion of the implications of our findings on future global monitoring efforts.

2. The Problem of Regulating Global Labor Standards

Concern over regulating labor standards at the international level can be traced back at least to discussions at the time of the founding of the International Labour Organization in 1919 (Lee 1997). The debate became particularly active, however, in the 1990s, in reaction to the promulgation of liberalized trade policies under the World Trade Organization, the International Monetary Fund, and other international bodies involved in trade and development.

As part of that reaction, a variety of mechanisms addressing global labor standards emerged over the past decade. Due to the absence of international regulatory institutions, all of these efforts rely on private organizations (for-profit as well as not-for-profit). Some forms of monitoring involve companies or groups of companies agreeing to certain codes of conduct and then monitoring their covered supply base internally on their own. Other forms also draw on codes of conduct agreed upon by stakeholders, but then use external, third party groups—NGOs, private companies, not-for-profit groups, or labor unions—to monitor adherence to codes. Finally, some systems draw upon combinations of these two methods.

O'Rourke (2003) provides a useful discussion of three general forms of these systems. Under a regulatory model, firms or delegated third parties engage in the traditional government role of monitoring and to some extent are policing compliance with codes of conduct or other agreed upon standards. This model, which may use internal or external monitoring, is represented by multi-party systems like the Fair Labor Association (FLA) or by the efforts of individual companies like The Gap Inc. and Nike.

A second model, pursued by groups like Social Accountability International (SAI), creates and administers voluntary codes of conduct that are built into certification based systems (modeled after ISO 9000). Third party auditors, following guidelines drafted by multiparty organizations like SAI, audit and certify factories that meet standards. Companies with a desire to meet those standards can choose to source from "approved" factories, rather than committing to ongoing internal or external monitoring.

A third model operates via international labor unions or independent organizations like the Workers Rights Consortium (WRC) that respond to complaints lodged by workers. Based on complaints, unions or groups like the WRC initiate public campaigns to raise public understanding and pressure on those brands and / or on the retailers drawing on those suppliers. This pressure is used, via private negotiations with the parties, to change conditions within those factories and their associated supply chains.

Although their approaches differ, these different nongovernmental regulatory systems have several common strengths (see Mamic (2003) and O'Rourke (2003)). First, they have emerged in an international setting where no governmental body or organization has authority to regulate labor conditions and, in fact, where the explicit linkage between trade and labor standards has been resisted (Moran 2004). Second,

privately-based systems allow innovation and flexibility to deal with the inherent complexities involved in regulating international supply chains (see generally Ayers and Braithewaite 1992). The non-governmental approach allows parties to fashion a system that meets the needs of often complex and dispersed supply chains. For example, in 2001 Nike drew on 579 different factories located around the world for its apparel lines alone (Locke 2002). Decentralized supply chains coordinated by powerful buyers (whether brands or retailers) are potentially more amenable to non-governmental institutions. Third, these systems provide a means of translating consumer preferences about labor standards into mechanisms that can potentially influence workplace conditions (Elliott and Freeman 2003).

Yet private systems of labor standards regulation also suffer from several fundamental limitations. The first weakness is linked to the final strength noted above: they rely to varying degrees on consumer preferences for goods produced under acceptable labor conditions. If consumer preferences for these goods diminish, so too does the pressure on companies to participate in the system. Although this is not to say that incentives entirely disappear—the possibility of future public embarrassment remains and some companies like The Gap Inc. and Nike have used their monitoring systems as part of their branding efforts—the monitoring apparatus is contingent on continuing consumer pressure. Second, these systems are usually detached from the traditional regulatory mechanisms in the nations where they operate and consequently do not complement—and at worst undermine—those governmental systems (Haufler 2001).

In many ways, the strengths and weaknesses of non-governmental systems are mirror images of those of traditional government regulation. National government

regulatory systems tend to be far less flexible than those that have emerged on the international scene and often are premised on large and fixed sites of work rather than the smaller, more diffuse and informal organization of many international supply chains (VonFergener 2001). On the other hand, unlike the voluntary nature of private systems, government-based system provide monitoring and enforcement agents with the force of law to change the behavior of non-compliant employers. Their ability to impact behavior does not, therefore, ebb and flow with changing public attention to labor conditions.

What if the advantages of the flexible monitoring types of arrangements characteristic of global labor standards mechanisms were linked to the "stronger" forms of public intervention available under traditional regulation? How might such a system perform if it employed some form of public enforcement pressure as a means of increasing the incentives for parties to engage in private monitoring?

Combining public and private enforcement models

Regulatory activity in the U.S. historically focused at the contractor and subcontractor level of the apparel industry.[1] The primary means of inducing compliance was through direct inspection activity, initiated either by the government or via worker complaints, and the deterrent effects of civil penalties for those found in repeated violation of standards.[2]

This regulatory model was altered substantially in the mid-1990s, partly in response to changes in the larger apparel industry. New forms of retailing—sometimes referred to as "lean retailing" (Abernathy *et.al.* 1999)—take advantage of information technology to use real time information to reduce exposure to changing consumer tastes. Lean retailing reduces the need for retailers to stockpile large inventories of a growing

range of products, thereby reducing their risks of stock-outs, markdowns, and inventory carrying costs. In contrast to the infrequent, large bulk shipments between apparel manufacturers and retailers under traditional retailing, lean retailers require frequent shipments made on the basis of ongoing replenishment orders by their suppliers. Apparel suppliers, in turn, must operate with far greater levels of responsiveness and accept a great deal more risk than in the past. Suppliers must replenish products within a selling season, with retailers now requiring replenishment of orders in as little as three days. This makes lean retailers vulnerable to any disruptions of the weekly replenishment of retail orders; such interruptions can lead to late-delivery penalties, cancellation of orders, and even loss of retail customers. The increasing importance of time translates into a potential tool of regulatory enforcement.

Beginning in 1996, the WHD shifted its focus from targeting individual contractors to exerting regulatory pressure on the supply chain itself by invoking a long ignored provision of the FLSA, Section 15(a). Under Section 15(a) (the "hot cargo" provision), WHD can embargo goods that have been manufactured in violation of the Act. This provision had limited impact in the traditional retail-apparel relationships where long delays in shipments and large retail inventories were expected. Use of the hot goods provision today potentially raises the costs to retailers and their manufacturers of delayed shipments and lost contracts given the short lead times of retailers. This potentially creates significant penalties that quickly exceed the value of expected civil penalties.

Current WHD policy uses the threat of embargoing goods to persuade *manufacturers* to augment the regulatory activities of the WHD. It does so by making the

release of embargoed goods contingent on *the manufacturer's* agreement to create a compliance program for all of its subcontractors. The manufacturer agrees to sign two types of agreement: (1) an agreement between itself and the Department of Labor, and (2) an agreement that the manufacturer signs with each of its contractors (Ziff and Trattner 1999; Weil 2002, 2005). The agreement between the Department of Labor and the manufacturer stipulates the basic components of a monitoring system that will be operated by the manufacturer. The agreement between the manufacturer and all of its contractors establishes the methods that the manufacturer will use to monitor the wage practices and related compensation policies of its network of contractors. The agreements at both the manufacturer and contractor level lay out a method of formal monitoring that will be undertaken by the manufacturer or its designated third party. The model language include (1) the use of unannounced monitoring visits "…at least once every 90 days..." where the monitor may review contractors' payroll records and timecards; (2) private employee interviews conducted by the monitor; (3) meetings between monitors and contractors to advise them of compliance problems; and (4) training for contractors and / or their employees (U.S. DOL, 1998; 1999a, b).

The use of government authority to interrupt the flow of goods therefore is designed to create incentives to induce the creation of more extensive private monitoring systems. Since contractors typically work for multiple manufacturers at any time, private monitoring may have significant spillover effects. Private monitoring might lead to greater regulatory presence at the contractor level than would be possible by relying solely on government inspectors. Using supply chain dynamics as a regulatory lever in

this way therefore combines elements of traditional government-based regulatory authority with elements of the non-governmental systems discussed above.

3. Data and descriptive statistics

Survey data

The data consists of four surveys of apparel contractors, two in Los Angeles / Southern California in the years 1998 and 2000 and two in the New York City area, in the years 1999 and 2001. The surveys were conducted by the U.S. Department of Labor Wage and Hour Division (WHD) using a randomly selected set of establishments in the Southern California and New York area apparel markets. The universes for the four surveys from which the samples were drawn were all apparel manufacturing and contractor firms appearing on the California and New York manufacturing registration lists for each of the sample years.[3] Contractors randomly selected from the list received an "inspection-based survey" by WHD investigators that included a review of all payroll records for a designated time period (Wage and Hour Division, 2001). The random basis of the survey therefore provides an unbiased sample of underlying compliance behavior for contractors that were monitored by one or more of their manufacturing customers as well as for those that were not monitored by manufacturers.

The inspection based survey includes a review of all payroll records of the contractor for the prior three month period (using the same payroll review procedure of a regular WHD investigation). In addition, investigators gather information on the contractor's current customers (manufacturers and jobbers), characteristics of monitoring (if any) maintained by those customers, and a variety of other data regarding business

characteristics including business size, years in operation, and types of products assembled.

Compliance measures

The upper portion of Table 1 presents summary statistics regarding contractor compliance with the minimum wage in Los Angeles and New York.[4] Table 1 provides a variety of measures of compliance which differ markedly between Los Angeles and New York over time. A significant percent of employers in both markets were not in compliance during the time periods under study, although employer compliance was higher in New York than Los Angeles: less than half of all employers were in compliance in Los Angeles in 1998 and 2000, whereas 64% of contractors complied in 1999, rising to 87% in 2001.

For the empirical analysis that follows, we focus on two measures of regulatory compliance (bolded rows in Table 1) as dependent variables: *incidence* of violation, as measured by the number of violations per 100 workers employed; and *severity* of violation as measured by back wages owed per worker per week. Since it is possible for interventions to affect the incidence of violations differently than the severity of violations, we examine the impact of monitoring on both outcomes in our empirical analysis. Table 1 indicates a high degree of employer noncompliance in both markets measured in terms of either incidence or severity. The incidence of violations tended to be higher in Los Angeles while the severity of violations was higher in New York City. Both the incidence and the severity of violations decreased in Los Angeles between 1998 and 2000 and in New York City between 1999 and 2001, although only the improvements in New York are statistically significant. The lower half of Table 1

displays the frequencies, means and standard deviations of other contractor characteristics that are potential correlates with compliance and are discussed below.

Monitoring variables

The frequencies of different types of monitoring arrangements are presented in Table 2. The upper part of the table compares the presence of seven core monitoring features conducted by one or more of the manufacturers that the contractors did work for in the past six months. For example, in 1998, 54% of all Los Angeles contractors surveyed did work for at least one manufacturer that undertook unannounced visits, which increased to 58% of those contractors in 2000. The incidence of the seven different types of monitoring features is somewhat lower among New York City contractors. The middle portion of Table 2 shows the distribution of the number of monitoring features across the samples. Once again, contractors located in the Los Angeles area were more likely to have multiple features of monitoring than those in New York.

Although there are many permutations of monitoring features, certain combinations of activities have potentially larger impacts on contractor behavior than others. We focus below on particular combinations of monitoring, grouped as "low," "medium," and "high," to capture different levels of oversight under which a contractor operates. "Low" monitoring implies that contractors operated under at least one monitoring feature with at least one manufacturer. A contractor is classified as operating under a "medium" level of monitoring when one or more of the manufacturers for which they work review the contractor's payroll and at least one has the authority to conduct unannounced visits. This combination of monitoring provisions places the contractor

under a greater chance of having minimum wage violations detected.[5] A contractor is classified as being subject to "high" monitoring if *all* of its manufacturing customers conduct *both* payroll review and unannounced visits, placing the contractor under the most stringent form of oversight. We construct the "low" monitoring variable to represent the marginal effect of any monitoring relative to no monitoring and the "medium" or "high" monitoring variables as equaling the marginal effect of that more stringent method relative to having any monitoring present. Because of incomplete information for the New York City sample in 2001, we use "medium" monitoring as the more stringent form of monitoring for that geographic area, and use "high" monitoring to capture stringent monitoring for the Los Angeles sample.

Other contractor characteristics:

We include other controls in our empirical analysis because of their potential correlation with both compliance and monitoring. Pricing power measures the self-reported ability of a contractor to renegotiate delivery price with manufacturers if the terms of delivery are changed by the manufacturer. Contractors able to exert some pricing power (for example because of their superior reputation) may be better able to comply with labor standards than those lacking such ability. A minority of contractors in the four samples report that they are able to affect the price of goods.

Skill levels required to complete garment assembly differ across apparel contractors. Because the more skilled the workforce, the higher will be the predicted wage of workers, the likelihood of noncompliance is negatively correlated with skill. Although we do not have direct information on the specific skill level of a contractor's workforce, we have measures of the product(s) manufactured by contractors in the

sample which we use as a proxy for skill requirements. For example, the production of dresses or suits generally requires greater skill levels than the production of T-shirts or casual pants (Abernathy *et. al.* 1999). In order to control for type of product, we include a dummy variable for the garment with the highest skill requirement in the sample—dresses—to control for these effects, where we predict a negative association between the dress variable and the dependent variables measuring noncompliance.

We include the number of manufacturers for which a contractor worked in the prior sixth month period as a control variable in the empirical analysis. The potential impact of this variable is ambiguous: on one hand, a contractor that works with a large number of manufacturers may do so because of its superior performance or comparative cost advantage. On the other hand, a large number of manufacturing customers may indicate significant customer dissatisfaction, low quality, and high turnover. Depending on which story is true, the number of manufacturers may be positively or negatively correlated with compliance. In any event, the number of manufacturers is also potentially correlated with our measures of stronger forms of monitoring, where the probability of being classified as under "medium" or "high" monitoring decreases with the number of manufacturers served by a contractor.

Finally, we include variables measuring the age and size of contractors in the empirical analysis. The number of years of contractor operation is an important correlate with compliance in part because of the high rate of turnover in the industry. About 50 percent of contractors in the sample have been in business for two years or less. Older contractors may have different characteristics correlated with their longevity that are also correlated with compliance (e.g. developed market niche, management capability,

reputation). We use employer size (measured in terms of total employment at the time of the survey) in our models given its positive correlation with regulatory compliance found in other studies (e.g. Brown, Medoff, and Hamilton 1988).

4. Estimated effects of monitoring on compliance

High levels of minimum wage noncompliance in the garment industry should not be surprising. Becker's seminal article and the subsequent literature on the economics of crime argues that individuals and firms weigh the relative costs and benefits of obeying laws in making decisions regarding compliance (Becker 1968; Polinsky and Shavell 2000). In a world of limited inspection resources, low penalties, and potentially high benefits for employers by paying below the minimum wage, the incentives for noncompliance may be high particularly in settings with large numbers of low wage workers (Ashenfelter and Smith 1979; Grenier 1982; Chang and Erlich 1985; Lott and Roberts 1995; Yaniv 2001).

The problem is further compounded by characteristics of the apparel industry. The industry has a splintered production system where different enterprises carry out the design, cutting, and sewing and pressing / packaging of apparel products. For example, a "jobber" may sell a design to retailers, and then contract with a manufacturer for delivery of the product. The manufacturer, in turn, may purchase and cut the product, but then contract out sewing to one or more companies (which may, in turn further contract out sub-assembly). Contractors compete to preassemble bundles of cut garment pieces in a market where there is little ability to differentiate services except for some sewing operations that require higher levels of skill content. Sewing contractors compete in a market with large numbers of small companies, low barriers to entry, and limited

opportunities for product differentiation, which all contribute to intense price-based competition. Because labor costs represent the vast majority of total costs for a sewing contractor, the pressure to strike deals in the short run with jobbers and manufacturers that would not be economically sustainable were the contractor to comply with wage and hour laws is high.

Given the incentives for contractors to not comply with minimum wage standards, can one or more manufacturer monitoring feature provide sufficient incentives to contractors to improve their compliance with the law? We examine this question first by estimating separate equations for each geographic area and year and then by pooling data for Los Angeles and New York across time periods.

OLS estimates of the determinants of minimum wage compliance will be biased because a significant number of contractors have not committed any violations of the minimum wage. As a result, the variables—minimum wage violations per 100 employees and minimum wage back pay owed per worker per week—are left-censored and therefore subject to bias in estimates of the various in variables. We correct for this problem by estimating a series of Tobit regressions for the two types of minimum wage outcomes.

Table 3 presents the results of Tobit regressions for the Los Angeles market in 1998 and 2000. "Low" monitoring represents the lowest level of monitoring activity, when at least one of the manufacturers the contractor works for performs at least one of the seven monitoring activities listed in Table 2. "High" monitoring is the highest possible degree of monitoring activity, and requires that every manufacturer for whom the contractor works perform payroll review *and* conduct unannounced visits.

The first four columns in Table 3 show the coefficients obtained from running a Tobit model (marginal effects of the latent variable). However, given that by construction the dependent variables must be greater than or equal to zero, we also present the marginal effects conditional on the dependent variable being uncensored. The latter coefficients provide a more useful estimate of the marginal effect of the regressors on the dependent variable because we are interested in the *change* in behavior of those who do not comply (variable greater than zero) and because the dependent variables cannot have a negative value.

The results in Table 3 indicate that the presence of any monitoring ("low") is associated with lower incidence and severity of minimum wage violations, although the coefficients are not significant for either 1998 or 2000. However, the marginal effect of more stringent monitoring ("high") has large and significant effects on both incidence and severity. Minimum wage compliance increases with the stringency of monitoring and the estimated effect grows markedly between 1998 and 2000: the presence of high monitoring is associated with a reduction in the incidence of violations by 8.5 per 100 workers in 1998 and by 20.2 per 100 workers in 2000, holding other factors constant. We look more closely at the changing impact of monitoring over time below. The coefficients for most of the control variables have their expected signs in the regressions for 2000 although the results are more mixed in 1998. However, few of the variables other than those relating to monitoring reach statistical significance.

Table 4 presents estimated monitoring effects for the New York City area for 1999 and 2001. Monitoring impacts for New York City are similar to those found in Los Angeles: the estimated effect of low monitoring variables on the incidence and severity

of violations are large and negative, but are not statistically significant. However, the marginal effects of "medium" monitoring on both incidence and severity are large and, for 1999, statistically significant. The presence of medium monitoring is associated with an additional reduction in the incidence of violations of 20.3 per 100 workers beyond what would be predicted for having any monitoring present. Medium monitoring is also associated with an additional reduction in back wages owed per worker per week of $12 (equal to about 1.5 times average hourly earnings for this group of workers).

The control variables for New York that are statistically significant have their expected sign. Pricing power is negatively associated with compliance in 1999 as is the dress dummy variable (a proxy for higher skill content) for 2001 (although the positive sign for that variable in 1999 is anomalous). The number of manufacturers a contractor worked for is positively and significantly correlated with the two dependent variables in the 2001 sample, implying that the higher the number of manufacturers with which a contractor worked, the lower their predicted level of compliance. We discuss this result and its relation to changing levels of regulatory performance below.

Changing effects of monitoring over time

The Department of Labor monitoring initiatives were instigated at different times with the effort in New York beginning in late 1995 and the program in Los Angeles in 1997. Part of the differences in the measured effects of monitoring found in Tables 3 and 4 may therefore reflect the time lags between the initiation and implementation of the programs in each market. Monitoring agreements take time to have an effect on contractor behavior such that the marginal effect of monitoring on a contractor may grow for some period, reflecting the increased ability of manufacturers to monitor and / or

contractors' awareness of that oversight. After they have been in place for some time, monitoring might exhibit diminishing effects as contractors adjust to the new regulatory regime and employers approach higher levels of compliance.

From this perspective, monitoring in New York in 1999 (four years after monitoring efforts were started in earnest in that market) may be closer to the estimated effects for Los Angeles in 2000 (three year into the monitoring effort). The change in the coefficient on high monitoring between 1998 and 2000 for Los Angeles could then reflect the growing impact of monitoring between its adoption and implementation, and the decreasing size of the medium monitoring coefficients between 1999 and 2001 for New York (Table 4) could reflect the substantial improvement in overall compliance between 1999 and 2001.

We test for changing monitoring effects over time by creating a single sample for Los Angeles combining 1998 and 2000 data (Table 5) and for New York combining data from 1999 and 2001(Table 6).[6] We then estimate Tobit regressions using the same variables as above, as well as dummy variable for the latter time period (2000 or 2001). In Tables 5 and 6, we estimate one set of models (model 1) assuming that low and medium / high levels of monitoring had similar impacts across time periods, and estimate a second set of models (model 2) where we relax this assumption by including interaction terms between monitoring variables and the later time period for each geographic area. The interaction terms allow us to test for the changing effect of monitoring variables over time. The other variables in the model remain restricted estimates, assuming no time-based interactions.

Table 5 results for Los Angeles are generally similar to those found in Table 3: for the restricted estimates, the effect of low monitoring on incidence and severity of compliance is smaller than that of the marginal additional impact of high monitoring. When interaction terms for the second period time period are added (low/2000; high/2000), the coefficients for both low and high monitoring actually become somewhat less negative (implying a smaller impact on compliance). However, the associated interaction terms are not significant in any of these models, meaning that we cannot reject the null hypothesis that there was no change in monitoring effects over the two time periods.

The coefficients in the restricted model for New York City in Table 6 indicate that the presence of stronger monitoring is significantly related to lower incidence and severity of minimum wage violations, although low monitoring is not. When interaction terms are added to capture the changing impact of monitoring, the baseline effects of "medium" monitoring on incidence and severity of violations become more negative than found in Table 4 and remain significant. The interaction terms lack significance, implying little change in monitoring effects over time. The dummy variable for Year 2001 in Table 5 is surprisingly large, implying a significant decrease in the overall level of noncompliance even after accounting for the variables in the model. Taken together, the results in Tables 5 and 6 imply that the effects of "medium" and "high" monitoring are robust, but there is little evidence that they have changed appreciably across the time period once other factors are taken into account.

5. Monitoring, sorting, and the entry and exit of contractors

One would expect manufacturers averse to future embargos of their goods to engage in two types of behaviors: (1) seeking to change the behavior of contractors so that they become more compliant with minimum wage provisions and (2) selecting contractors that have a higher probability of paying their workers the minimum wage. As a result, part of the effect of monitoring at the contractor level (the direct effect) could arise from changes in behavior of contractors who have been paired through the luck of the draw with manufacturers that happen to have such an agreement. But another part of the effect (the sorting effect) could be due to manufacturers matching themselves with contractors that have a higher probability of complying with the law *ex ante*.

Both effects of monitoring are relevant to the question of whether manufacturer monitoring improves contractor behavior, provided that the sorting effect changes the distribution of complying and non complying contractors. If the primary concern of monitoring is its overall effectiveness, the fact that the monitoring variable measures both sorting and direct monitoring effects does not undermine the overall finding that the public / private monitoring arrangement improves compliance performance.

The sorting effect, however, can lead to improvements in overall regulatory performance if a growing percent of manufacturers agree to monitor over time. The large number of companies entering into and leaving the industry each year contributes to the long-term difficulty of controlling labor standards in industries like apparel. However, in the face of successful monitoring efforts, contractor turnover could lead to longer-term improvements in compliance through the sorting effect.

If the ratio of manufacturers requiring monitoring relative to non-monitoring manufacturers increases, the potential "dance partners" for noncompliant contractors diminishes and sorting should further improve compliance. In fact, that is precisely what has happened—the overall incidence of stronger forms of manufacturer monitoring increased in both markets over the time period studied: the prevalence of stronger forms of monitoring increased from .24 to .31 in Los Angeles between 1998 and 2000 and from .22 to .37 in New York between 1999 and 2001 (see Table 2). A 2004 report of the Department of Labor indicates that the percentage of manufacturers engaging in monitoring has increased even further since the time of the later New York City and Los Angeles surveys (Wage and Hour Division 2004).

The increasing prevalence of manufacturer monitoring may, in turn, change the benefit / cost analysis of contractors entering the industry such that new entrants have better compliance behavior than those leaving the industry. If so, the average level of compliance in the industry will improve over time. Although we do not have measures of compliance behavior of exiting firms, our data indicate that regulatory performance of *new* contractors improved between earlier and later time periods. For example, the average New York City contractor with less than two years of operation had a violation rate of 26.5 per 100 workers and an average back wage owed of $19.66 per worker per week in 1999. By 2001, the average violation rate for new contractors fell to 4.5 and average back wage owed fell to $1.18. Although the incidence of violations among new contractors in Los Angeles did not change between 1998 and 2000, the average severity of violations among new contractors decreased from $10.84 back wages owed per worker per week in 1998 to $8.87 in 2000.

The combined effects of monitoring and sorting help to explain the overall decrease in the incidence and severity of minimum wage violations in Los Angeles and particularly in New York, that are shown in Table 1. Although the problem of minimum wage noncompliance remains, the public / private monitoring system appears to have had a significant impact in reducing the extent of those problems. We turn in the final section to the implications of this system for future efforts at regulating international labor standards.

6. Conclusions

Despite longstanding forces that push towards high noncompliance, this study suggests that government initiatives have had large and significant impacts on minimum wage compliance. The use of a combination of public enforcement and private market leverage in the New York City and Los Angeles markets has substantially reduced both the frequency with which violations occur within garment workplaces as well as the average level of underpayment to workers. These results indicate the robustness of combining public enforcement with private monitoring found in earlier studies of these efforts (Weil 2005).

Does the U.S. effort provide a model for international efforts to regulate labor standards? It would be easy to answer "no" given the absence of an international statute that provides for anything comparable to the embargo authority of the Fair Labor Standards Act and the lack of an international body with comparable enforcement authority as the WHD. But that too quickly dismisses its implications.

Three features of the WHD system are potentially applicable to the global labor standards case. First, the WHD example demonstrates the impact of using substantial

private penalties (interruption of the flow of goods) to change employer behavior. The global system of apparel distribution and production of apparel is also extremely sensitive to supply chain disruptions (Evans and Harrigan 2005). An international authority vested with a regulatory mechanism to interrupt the timely flow of goods could have significant impacts on adherence to broad regulatory policies. In one form, the mechanism could be used to bring economic pressure on a national government. For example, an international body could invoke its embargo authority if a signatory nation pursued policies that supported systemic violations of their own labor standards as a form of trade policy (a form of international labor standard proposed by Elliott and Freeman 2003, pp. 136-137). Alternatively, the mechanism might augment a national government's efforts to enforce its own labor policies, such as a regional trade agreement with an embargo mechanism to ensure that signatory nations enforced core ILO principles at covered workplaces.

However, given current resistance to the linking of trade and labor standards at the WTO or regional trade pact levels, creation of an embargo mechanism with such sweeping authority over national policies seems unlikely.[7] A more plausible application of the WHD model might be its integration into the activities of NGO and third party monitoring agents like the FLA. Here, multi-party agreements could provide a delegated agent with the authority to embargo products of a major signatory party if there was evidence of significant violation of agreed upon codes of conduct within covered supply chains. The aim here would not be the constant exercise of this authority, but using the threat of such embargoes to significantly raise the incentives for establishing effective and ongoing monitoring arrangements on the ground. An important caveat to these ideas is that given the very high costs associated with supply chain interruptions, private,

public, or NGO institutions empowered to apply them would have to invoke this authority responsibly and judiciously. At the same time, the threshold for invoking embargo authority could not be so high as to make the *de facto* probability of interruption near zero, thereby undercutting the incentives for effective private monitoring.

A second implication of the WHD model is that private monitoring can take on multiple forms and still be effective. The WHD did not (nor could it statutorily) impose a single type of monitoring in its agreements with manufacturers, nor mandate a specific form of monitoring between manufacturers and their subcontractors. Not all forms of monitoring work equally well—in the case of LA and NYC, significant monitoring impacts were associated with the use of a threshold set of practices—payroll review and unannounced inspections. Nonetheless, these basic monitoring features appear in a variety of forms. Given sufficient underlying incentives to create a monitoring system, it can then take on many different forms. Because of the significant variation in conditions across countries in terms of labor standards, workforces, nature of manufacturing, and other fundamental conditions, variation in forms of monitoring are inevitable and probably desirable (see, for example, the most recent report on monitoring by The Gap Inc. 2005).

A final implication of the WHD case is the need to design labor standards systems that are sustainable over time. The WHD monitoring efforts appear to have sustained their effects in both Los Angeles and New York over an extended period of time. What is more, that effect seems to have changed the behavior of established firms as well as those entering the industry. A weakness of current non-governmental forms of regulation is their dependence on continuing consumer or other forms of public pressure. Although

some companies may stay committed to monitoring because of a growing commitment and institutionalization of those systems, others may lose interest if pressure dissipates. What is more, many factories have multiple customers, some of whom engage in monitoring, and others that do not. The results from LA and NYC show that if a significant number (not all, but also more than one) move under monitoring, it starts to have greater effects. If the percentage of work covered by monitoring increases, the system becomes more effective in changing behavior of current as well as prospective participants. If various parties with the authority to interrupt the flow of goods grow and the incentives spread, the effects of monitoring can spill over to a wider circle of employers. Given the range of sourcing options at the global level, any long term effort to affect international labor standards will need to find a means to influence workplace conditions beyond the bounds of those directly participating in those systems.

References

Abernathy, Frederick, John T. Dunlop, Janice H. Hammond, David Weil. 1999. *A Stitch in Time: Lean Retailing and the Transformation of Manufacturing—Lessons from the Apparel and Textile Industries*. (New York: Oxford University Press).

Ashenfelter, Orley and Robert Smith. 1979. "Compliance with the Minimum Wage Law." *Journal of Political Economy*, v. 87, no. 2, pp. 333-350.

Ayers, Ian and John Braithewaite. 1992. *Responsive Regulation: Transcending the Deregulation Debate*. Oxford, UK: Oxford University Press.

Becker, Gary. 1968. "Crime and Punishment: An Economic Analysis." *Journal of Political Economy*, v. 76, pp. 169-217.

Brown, Charles, James Medoff, and James Hamilton. 1988. *Employers Large and Small*. Cambridge, MA: Harvard University Press.

Chang, Yang-Ming and Isaac Erlich. 1985. "On the Economics of Compliance with the Minimum Wage Law." *Journal of Political Economy*, v. 93, no. 1, pp. 84-91.

Elliott, Kimberly and Richard Freeman. 2003. *Can Labor Standards Improve Under Globalization?* Washington, DC: Institute for International Economics.

Evans, Carolyn and James Harrigan. 2005. "Distance, Time, and Specialization: Lean Retailing in General Equilibrium." *The American Economic Review*, v. 95, no. 1, pp. 292-313.

Gap Inc. 2005. *Facing Challenges, Finding Opportunities*. Gap Inc. 2004 Social Responsibility Report.

Grenier, Gilles. 1982. "On Compliance with the Minimum Wage Law." *Journal of Political Economy*, v. 90, no. 1, pp. 184-187.

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

Lee, Eddy. 1997. "Globalization and Labour Standards: A Review of Issues." International Labour Review, v. 136, no. 2, pp. 173-189.

Locke, Richard. 2002. "The Promise and Perils of Globalization: The Case of Nike." Working paper. Massachusetts Institute of Technology.

Lott, John and Russell Roberts. 1995. "The Expected Penalty for Committing a Crime: An Analysis of Minimum Wage Violations." *Journal of Human Resources*, v. 30, no. 2, pp. 397-408.

Moran, Theodore. 2004. "Trade Agreements and Labor Standards." *The Brookings Institution Policy Brief*, No. 133, May.

O'Rourke, Dara. 2003. "Outsourcing Regulation: Analyzing Nongovernmental Systems of Labor Standards and Monitoring." *The Policy Studies Journal*. v. 31, no. 1, pp. 1-29.

Polinsky, Mitchell and Steve Shavell. 2000. "The Economic Theory of Public Enforcement of Law." *Journal of Economic Literature,* v.39, no.1, pp. 45-76.

U.S. Department of Labor. 1998. "Protecting America's Garment Workers: A Monitoring Guide." Washington, D.C.: Department of Labor. October.

U.S. Department of Labor. 1999. "NO SWEAT Strategy." Washington, D.C.: Department of Labor, June.

U.S. Department of Labor, Bureau of International Labor Affairs. 2000. *Wages, Benefits, Poverty Line, and Meeting Workers Needs in the Apparel and Footwear Industries of Selected Countries*. Washington, DC: Department of Labor.

U.S. Department of Labor, Wage and Hour Division. 2004. *Report on Initiatives.* Washington, D.C.: Department of Labor.

Weil, David. 2002. "Regulating Labor Standards in the United States: New Tools for an Old Problem." *Challenge* (January / February), v. 45, no. 1, pp. 47-74.

Weil, David. 2005. "Public Enforcement / Private Monitoring: Evaluating a New Approach to Regulating the Minimum Wage." *Industrial and Labor Relations Review*. v.58, no.2, pp. 238-257.

Yaniv, Gideon. 2001. "Minimum Wage Noncompliance and the Employment Decision." *Journal of Labor Economics*, v. 19, no.3, pp. 596-603.

Ziff, Laura and John Trattner. 1999. "Shutting Down Sweatshops." in Donahue, John, ed. *Making Washington Work: Tales of Innovation in the Federal Government*. Washington, D.C.: Council for Excellence in Government / Brookings Institution Press, pp. 47-58.

Table 1:
Regulatory compliance measures and contractor characteristics, Los Angeles 1998 /2000; NYC 1999 / 2001

	Los Angeles Means (Standard deviations)		*New York City Means (Standard deviations)*	
	1998	*2000*	*1999*	*2001*
Regulatory compliance measures ***(Dependent variables in bold)***				
Percent of employers in compliance with minimum wage	0.49 (0.50)	0.46 (0.50)	0.64 (0.48)	0.87 (0.34)
Average number of workers paid in violation per contractor	6.9 (10.36)	6.51 (11.45)	6.02 (11.71)	2.19 (6.82)
Average back wage owed per contractor (during 90 day investigation in $s)	2089 (4443)	1999 (4597)	3813 (8311)	628 (2404)
Average back wage owed per affected worker, per week ($s)	24.02 (28.20)	22.15 (23.46)	51.73 (47.00)	24.69 (23.65)
Number of workers paid in violation of minimum wage per 100 employees	**32.30 (38.51)**	**27.43 (34.09)**	**23.88 (39.46)**	**9.76 (26.99)**
Average back wage owed per worker, per week ($s)	**8.76 (17.44)**	**6.51 (12.15)**	**15.84 (37.39)**	**2.87 (10.97)**
Contractor characteristics (Independent variables)				
Pricing power (=1 if contractors reports it can successfully renegotiate price if manufacturer changes delivery date)	0.13	0.10	0.29	0.27
Dresses (=1 if contractor produces dresses; 0 otherwise)	0.54	0.34	0.54	0.46
Number of manufacturers that contractors worked for in past 6 months	2.45 (1.65)	2.16 (1.79)	1.74 (1.04)	1.55 (0.76)
Age dummy (=1 if contractor in business for two or more years)	0.47	0.51	0.35	0.40
Employer size (number of workers)	33.5 (37.3)	32.0 (31.33)	26.1 (15.0)	29.1 (20.1)
N	77	67	91	67

Table 2:
Types of monitoring agreements and arrangements: Los Angeles 1998 /2000; NYC 1999 / 2001

	LA1998	*LA2000*	*NYC1999*	*NYC2001*
Monitoring Activity				
Monitoring activity employed by manufacturer				
Manufacturers review payroll	.65	.53	.40	.52
Manufacturers review time cards	.72	.60	.40	.54
Manufacturers conduct employee interviews	.61	.50	.28	.40
Manufacturer requires contractor to provide minimum wage information to workers	.64	.52	.27	.37
Manufacturer discloses problems with practices to contractor	.32	.42	.11	.25
Manufacturer recommends corrective action to contractor	.31	.42	.15	.27
Manufacturer may conduct unannounced visits	.54	.58	.27	.42
Number of monitoring features				
0	.222	.29	.471	.403
1	.069	.113	.082	.03
2	.042	.016	.118	.105
3	.042	.048	.059	.06
4	.111	.081	.118	.06
5	.208	.065	.059	.119
6	.111	.081	.035	.045
7	.194	.307	.059	.179
Type of monitoring				
• *Low*: One or more monitoring activities by one or more manufacturers	.778	.71	.529	.597
• *Medium*: Payroll review and unannounced inspections, but not necessarily by same manufacturer	.486	.452	.224	.373
• *High:* Payroll review and unannounced inspections by all manufacturers	.239	.307		
Number of observations	71	62	79	67

Table 3:
Monitoring effects, Tobit regressions, Los Angeles 1998 /2000

	Tobit coefficients				Marginal Effect: Conditional on being greater than zero			
	Minimum wage violations per 100 employees		Minimum wage back pay per worker per week		Minimum wage violations per 100 employees		Minimum wage back pay per worker per week	
	1998	*2000*	*1998*	*2000*	*1998*	*2000*	*1998*	*2000*
Low monitoring	-25.80	-19.55	-5.63	-4.73	-10.79	-8.63	-1.96	-1.73
	(20.93)	(15.71)	(8.61)	(6.07)	(8.15)	(6.55)	(2.88)	(2.13)
High monitoring	-17.87	-50.52**	-20.81**	-18.37**	-8.47	-20.15**	-6.44*	-6.08**
	(22.35)	(17.93)	(9.88)	(7.00)	(11.0)	(8.03)	(3.44) *	(2.58) **
Size	-18.53	-2.81	-3.40	-0.84	-7.21	-1.17	-1.14	-0.30
	(12.90)	(9.30)	(5.33)	(3.60)	(5.02)	(3.88)	(1.78)	(1.27)
Dresses	6.81	-19.32	6.30	-4.62	2.64	-7.78	2.09	-1.59
	(17.88)	(14.30)	(7.46)	(5.53)	(6.96)	(5.96)	(2.50)	(1.95)
Age dummy	3.15	-11.91	-0.93	-4.00	1.23	-4.94	-0.31	-1.40
	(19.21)	(15.13)	(8.02)	(5.86)	(7.48)	(6.31)	(2.68)	(2.06)
Pricing power	2.19	-52.40	0.49	-15.16	0.86	-16.86	0.16	-4.36
	(27.33)	(33.48)	(11.40)	(12.83)	(10.64)	(13.97)	(3.81)	(2.91)
# manufacturers	-0.45	-7.14	-1.75	-1.63	-0.18	-2.98	-0.58	-0.57
	(5.71)	(4.41)	(2.46)	(1.67)	(2.22)	(1.84)	(0.82)	(0.58)
Constant	84.58**	81.79**	17.50	19.41*	32.92**	34.11**	5.85	6.83*
	(42.54)	(26.80)	(17.71)	(10.31)	(16.56)	(11.18)	(5.92)	(3.63)
Prob > Chi^2	0.39	0.00	0.31	0.01				
Pseudo R^2	0.0162	0.065	0.0220	0.057				
Log likelihood	-224.3	-197.1	-184.3	-161.6				
N	71	62	71	62				

Standard errors are shown in parentheses. An asterisk after the Tobit coefficient denotes significance at the 10 percent level and a double asterisk for 5 percent.

Table 4:
Monitoring effects, Tobit Regressions, New York 1999 /2001

	Tobit coefficients				**Marginal Effect: Conditional on being greater than zero**			
	Minimum wage violations per 100 employees		Minimum wage back pay per worker per week		Minimum wage violations per 100 employees		Minimum wage back pay per worker per week	
	1999	*2001*	*1999*	*2001*	*1999*	*2001*	*1999*	*2001*
Low monitoring	-18.87	-24.90	-8.63	-15.48	-5.36	-3.58	-2.33	-2.09
	(23.32)	(52.27)	(15.65)	(18.03)	(6.56)	(7.40)	(4.19)	(2.36)
Med. monitoring	-78.24**	-83.08	-48.81**	-22.54	-20.33**	-12.22	-12.00*	-3.44
	(34.10)	(68.28)	(22.81)	(23.39)	(10.27)	(10.53)	(6.45)	(3.74)
Size	8.35	-24.66	3.91	-10.51	2.35	-3.49	1.05	-1.37
	(17.87)	(40.69)	(12.02)	(14.28)	(5.02)	(5.76)	(3.22)	(1.87)
Dresses	39.80*	-94.01*	21.20	-39.38*	11.12*	-13.25*	5.65	-5.15**
	(22.46)	(56.49)	(15.06)	(20.22)	(6.31)	(8.00)	(4.04)	(2.65)
Age dummy	8.58	60.88	-2.35	23.20	2.44	8.99	-0.63	3.18
	(23.22)	(44.23)	(15.74)	(15.14)	(6.53)	(6.26)	(4.22)	(1.98)
Pricing power	-51.51**	58.61	-35.96**	9.96	-13.49*	9.06	-8.96*	1.36
	(25.64)	(45.57)	(17.45)	(15.55)	(7.21)*	(6.45)	(4.68)	(2.03)
# manufact.	13.89	65.29**	8.19	25.20**	3.90	9.25**	2.20	3.30**
	(9.52)	(31.35)	(6.38)	(10.79)	(2.68)	(4.44)	(1.71)	(1.41)
Constant	-59.43	-121.77	-33.35	-35.25	-16.70	-17.24	-8.94	-4.61
	(61.54)	(142.22)	(41.16)	(49.26)	(17.30)	(20.14)	(11.03)	(6.44)
Prob > Chi^2	0.01	0.01	0.01	0.01				
Pseudo R^2	0.0519	0.1186	0.0487	0.1513				
Log likelihood	-183.3	-64.4	-170.9	-53.66				
N	79	67	79	67				

Standard errors are shown in parentheses. An asterisk after the Tobit coefficient denotes significance at the 10 percent level and a double asterisk for 5 percent.

Table 5:
Tobit Regressions, Los Angeles Combined Results

	Tobit coefficients				Marginal Effect: Conditional on being greater than zero			
	Model 1—No interactions		Model 2—With Interactions		Model 1—No interactions		Model 2—With Interactions	
	Minimum wage violations per 100 employees	Minimum wage back pay per worker per week	Minimum wage violations per 100 employees	Minimum wage back pay per worker per week	Minimum wage violations per 100 employees	Minimum wage back pay per worker per week	Minimum wage violations per 100 employees	Minimum wage back pay per worker per week
Low monitor	-24.24*	-5.14	-31.44	-6.45	-10.45*	-1.84	-13.86	-2.34
	(12.95)	(5.55)	(19.89)	(8.53)	(5.89)	(2.05)	(9.68)	(3.23)
High monitor	-34.68**	-19.33**	-17.29	-18.17**	-14.68**	-6.25**	-9.33	-6.01**
	(14.83)	(5.38)	(20.09)	(7.35)	(5.76)	(1.61)	(10.36)	(2.23)
Size	-10.01	-1.97	-10.31	-2.00	-4.04	-0.68	-4.17	-0.69
	(7.18)	(2.93)	(7.15)	(2.93)	(2.93)	(1.02)	(2.92)	(1.01)
Dresses	-5.33	0.41	-6.94	0.37	-2.14	0.14	-2.80	0.13
	(11.54)	(4.44)	(11.23)	(4.54)	(4.63)	(1.54)	(4.51)	(1.57)
Age dummy	-12.88	-4.69	-12.54	-4.74	-5.17	-1.61	-5.04	-1.63
	(11.95)	(4.79)	(11.87)	(4.75)	(4.75)	(1.64)	(4.73)	(1.63)
Pricing power	-11.13	-3.57	-9.94	-3.47	-4.29	-1.19	-3.86	-1.16
	(17.92)	(6.57)	(17.83)	(6.57)	(6.65)	(2.11)	(6.67)	(2.11)
# manufact.	-3.77	-1.65	-3.78	-1.69	-1.52	-0.57	-1.53	-0.58
	(3.40)	(1.24)	(3.40)	(1.27)	(1.37)	(0.43)	(1.38)	(0.44)
Low monit / 2000	X	X	15.61	2.60	X	X	6.47	0.91
			(25.20)	(10.16)			(10.84)	(3.6)
High monit/2000	X	X	-35.37	-2.46	X	X	-8.54	-.41
			(27.68)	(10.02)			(5.85)	(1.64)
Year2000	-4.80	-0.75	-8.36	-2.10	-1.93	-0.26	-3.38	-0.73
	(11.26)	(4.32)	(19.29)	(7.84)	(4.56)	(1.49)	(7.87)	(2.72)
Constant	88.82**	20.02**	92.55**	21.03**			-	-
	(24.42)	(9.50)	(28.88)	(11.04)				
Prob > F	0.00	0.01	0.00	0.01				
N	133	133	133	133				

Standard errors are shown in parentheses. An asterisk after the Tobit coefficient denotes significance at the 10 percent level and a double asterisk for 5 percent.

Table 6:
Tobit Regressions, New York City Combined Results

	Tobit coefficients				Marginal Effect: Conditional on being greater than zero			
	Model 1—No interactions		Model 2—With Interactions		Model 1—No interactions		Model 2—With Interactions	
	Minimum wage violations per 100 employees	Minimum wage back pay per worker per week	Minimum wage violations per 100 employees	Minimum wage back pay per worker per week	Minimum wage violations per 100 employees	Minimum wage back pay per worker per week	Minimum wage violations per 100 employees	Minimum wage back pay per worker per week
Low monitoring	-15.88	-8.23	-8.96	-1.99	-3.57	-1.78	-2.01	-0.43
	(22.63)	(12.41)	(27.60)	(15.67)	(5.11)	(2.69)	(6.22)	(3.38)
Med monitoring	-69.79**	-37.21**	-81.58**	-45.11**	-15.63**	-8.05**	-17.43**	-9.12**
	(31.90)	(16.90)	(35.14)	(19.52)	(6.41)	(3.28)	(6.92)	(3.65)
Size	-1.97	-2.83	-0.35	-1.58	-0.44	-0.61	-0.08	-0.34
	(17.70)	(9.39)	(16.95)	(9.14)	(3.95)	(2.02)	(3.79)	(1.97)
Dresses	1.00	-1.91	0.95	-2.24	0.22	-0.41	0.21	-0.48
	(18.70)	(10.36)	(18.76)	(10.41)	(4.16)	(2.23)	(4.19)	(2.25)
Age dummy	34.47*	13.51	34.64*	13.44	7.94*	2.96	8.01*	2.96
	(19.26)	(10.58)	(19.24)	(10.27)	(4.54)	(2.35)	(4.58)	(2.29)
Pricing power	-16.79	-16.01	-16.64	-15.98	-3.65	-3.30	-3.63	-3.30
	(23.17)	(11.94)	(22.83)	(11.76)	(4.92)	(2.37)	(4.87)	(2.34)
# manufacturers	26.80**	14.09**	27.24**	14.51**	5.97**	3.02**	6.09**	3.12**
	(7.94)	(5.17)	(7.72)	(5.14)	(1.79)	(1.10)	(1.76)	(1.10)
Low monit/2001	X	X	-21.37	-19.62	X	X	-4.64	-4.03
			(51.00)	(26.83)			(10.77)	(5.26)
High monit/2001	X	X	31.83	23.20	X	X	-1.48	-0.995
			(60.29)	(31.91)			(3.02)	(1.53)
Year2001	-54.04**	-35.29**	-49.60*	-30.15**	-12.12**	-7.64**	-11.15*	-6.53**
	(19.77)	(11.60)	(27.50)	(15.37)	(4.22)	(2.41)	(6.16)	(3.33)
Constant	-57.95	-21.22	-65.24	-27.32				
	(58.19)	(30.89)	(57.50)	(31.55)				
Prob > F	0.00	0.01	0.00	0.02				
N	146	146	146	146				

Standard errors are shown in parentheses. An asterisk after the Tobit coefficient denotes significance at the 10 percent level and a double asterisk for 5 percent.

Table 7:
Regulatory compliance among new contractors: Los Angeles 1998 /2000; New York City 1999 / 2001

	Los Angeles Means (Standard deviations)		*New York City Means (Standard deviations)*	
	1998	*2000*	*1999*	*2001*
Regulatory compliance--all contractors				
Number of workers paid in violation of minimum wage per 100 employees	32.30 (38.51)	27.43 (34.09)	23.88 (39.46)	9.76** (26.99)
Average back wage owed per worker, per week	8.76 (17.44)	6.51 (12.15)	15.84 (37.39)	2.87** (10.97)
Regulatory compliance--new contractors)				
Number of workers paid in violation of minimum wage per 100 employees	35.6 (39.53)	37.75 (35.71)	26.5 (41.84)	4.5** (19.06)
Average back wage owed per worker, per week	10.84 (20.10)	8.87 (14.36)	19.66 (43.15)	1.18** (6.16)
Percent of contractors in business less than 2 years	.53	.49	.65	.6

An asterisk after the year 2000 (2001) denotes significance at the 10 percent level of the difference in means between 1998 and 2000 (1999 and 2001) and a double asterisk for 5 percent.

Endnotes

---

[1] Minimum wages (as well as regulation of child labor and overtime compensation) are set out in the Fair Labor Standards Act (FLSA) of 1938. Enforcement of FLSA is carried out by investigators of the Wage and Hour Division (WHD), located in 400 offices around the country.

[2] The basic remedy under FLSA is payment of back wages to compensate workers for underpayment (pay below minimum wage or overtime payments for work beyond 40 hours in the work week). First-time violators are only required to pay back wages owed to under paid workers. Employers owe civil penalties only if found in continued violation of minimum wage provisions in subsequent inspections. Lott and Roberts (1995) argue that the ability of individuals to press their claims through the private bar make penalties for first-time offenders potentially higher than back pay alone, but the number of such claims are very low.

[3] The registration lists for apparel consists of "…all persons or firms engaged in the business of apparel manufacturing…" where apparel manufacturing is defined as "…sewing, cutting, making, processing, repairing, finishing, assembling, or otherwise preparing any garment or any article of wearing apparel or accessories designed or intended to be worn by any individual…" Registration lists are kept by separate state-level agencies in California and New York.

[4] The two markets accounted for about 40 percent of U.S. apparel employment in 2000, based on estimates from the Current Employment and Statistic Survey conducted by

BLS. Total employment in the apparel sector was 496,800; the number of workers in New York was 65,600 and in California 122,600.

[5] We arrive at this particular combination of monitoring activities as the focus of subsequent empirical analysis through a factor analysis of the seven attributes as predictors of compliance behavior. These results are available from the authors.

[6] In order to account for the difference in the sample size in different years, we ran a Tobit model which considers each year as a different strata. We used weights which denote the inverse of the probability that a particular observation is included in the sample and assume that the number of contractors did not change between the two sample years. In our case this is equivalent to assigning to each strata a weight which is the number of observations of the other strata.

[7] The only exception is Article XX(e) of the General Agreement on Tariffs and Trade that allows countries to block the entry of goods into a country if it was produced by prison labor. However, even this provision has seldom been invoked in recent times.