Compliance with the Minimum Wage: Can Government Make a Difference?

David Weil
Associate Professor of Economics
Boston University School of Management

Research Fellow
Taubman Center for State and Local Government
John F. Kennedy School of Government

Boston University
School of Management
595 Commonwealth Avenue, Room 520A
Boston, MA 02215
Email: davweil@bu.edu

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Abstract

This paper examines compliance with federal minimum wage laws in the U.S. apparel industry and analyzes the impact of new methods of intervention designed to improve regulatory performance. Drawing on data from a randomized survey of apparel contractors, we evaluate the impact of agreements between manufacturers and the government used to monitor contractor behavior as a means of improving compliance outcomes. Non-compliance is significantly correlated with characteristics predicted by theory including employer size, skill content, and the elasticity of labor and product demand. Nonetheless, stringent forms of contractor monitoring are associated with significant reductions in violations of minimum wage standards. The results suggest that well-designed private / public monitoring efforts can lead to significant improvements in regulatory performance.

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The economics of minimum wage has been an area of intense academic interest over the past decade (e.g. Card and Krueger 1995). Relative to this large and growing literature on the employment effects of minimum wage, comparatively little attention has been paid to the compliance behavior of employers subject to the minimum wage since the seminal article by Ashenfelter and Smith (1979). Yet there are strong reasons to believe that many employers will choose to violate minimum wage standards when evaluating the benefits and costs of compliance (Stigler 1970; Shavell and Polinsky 2000). In general, the incentives not to comply grow with the divergence between the wage that employers desire to pay their workforce and the mandated minimum wage. This divergence, in turn, is a function of features of the labor and product market facing the employer.

Workers in low wage industries are particularly likely to receive wages below the statutory level to which they are entitled. One such industry is apparel, which has long exemplified the problem of enforcing minimum labor standards and more generally the "sweatshop" problem. In 1893, The Committee on Manufactures of the House of Representatives released a report regarding their investigations of the sweating system of production. Among other findings, the Committee concluded that 80 percent of production originated in sweatshop production.[1] Several years later, President McKinley appointed a commission made up of members of Congress and private citizens to study the problem. Arising from their study

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[1] See U.S. Congress, House of Representatives, Committee on Manufactures, "The Sweating System," House Reports, 52nd Congress, 2nd Session, Vol. 1, no. 2309, 1893, pp. iv-viii.

running from 1898-1901, the commission documented extensive abuses including long hours, low pay, and unsanitary conditions.[2]

This article examines the broader issue of compliance with minimum wage laws by empirically examining microdata from the U.S. apparel industry today. We first review the literature on the economics of minimum wage compliance. We then analyze product and labor market conditions and regulatory interventions to predict employer behavior in the industry. Using a unique set of data from random inspection-based surveys of apparel contractors in Los Angeles, we examine correlates of employer compliance as well as other regulatory performance measures. We then analyze the impact of a novel regulatory strategy that creates agreements between the government and manufacturers requiring the latter to monitor labor standards among their contractors. We model the determinants of minimum wage performance in order to measure the impact of those agreements and to explain how new monitoring arrangements change employer compliance behavior. The paper concludes with a discussion of the implications of these findings to the regulation of labor standards domestically and internationally and on other public policies.

II. Background

A. Economics of minimum wage compliance

A series of articles beginning with Ashenfelter and Smith (1979) analyze the economic calculus of compliance as it applies to minimum wage. In their article, Ashenfelter and Smith show that a profit maximizing firm selling output at price (*p*) and able to employ workers (*L*) at a

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[2] Reports of the Industrial Commission on Immigration and on Education. Washington, D.C.: Government Printing Office, 1901, vol. XV. A discussion of the history of regulating labor standards in the apparel industry can be found in Abernathy, Dunlop, Hammond, and Weil (1999), Chapters 2, 10, and 15.

wage rate (*w*), an elasticity of demand for labor (*η*) and other factors of production at price (*r*) will decide whether to comply with the minimum wage by balancing the expected costs of complying with the law and paying the mandated wage (*M*) against the expected cost of non-compliance. The latter reflects the probability of being caught (λ) and incurring a penalty (*D*) against the chance of not being caught and paying wages below the mandated minimum wage (*w*). Ashenfelter and Smith show that an employer will choose non-compliance in the case that:

$$E(\Pi) - \Pi(M, r, p) = (1 - \lambda)[\Pi(w, r, p) - \Pi(M, r, p)] - \lambda D > 0 \qquad (1)$$

In (1), the employer balances the expected profit from not complying (E(Π)) against the profit known with certainty if the firm chooses to comply with the standard (Π(*M,r,p*)). Equation (1) predicts that noncompliance will rise with the divergence between the mandated wage and the market wage and fall with either increased probability of detection or higher penalty levels.

Given the tradeoff between compliance and noncompliance portrayed in (1), Ashenfelter and Smith show that an employer will choose not to comply with the law if the cost of non-compliance, being the chance of caught (λ) and assessed the penalty (D) is less than the benefit of not complying, being the chance of not being detected (1- λ) multiplied by the total labor cost saved by paying workers below the statutory minimum plus the additional savings arising from incremental labor added because of paying below minimum wage, or:

$$(1 - \lambda)[L(M - w) - (L/w)[.5(M - w)^2 \eta]] > \lambda D \qquad (2)$$

The estimated benefit of not complying grows with the amount of under payment, both because of the labor savings from the underpayment of a work force of a given size [L(M-w)] and the growing benefits arising from underpayments because of its effect on employment (the second term in the benefit side of equation (2)). In particular, the incentive not to comply grows as a function of the following employer characteristics:

- Correlates that would lead the market wage to be substantially below the statutory wage (M-w>0) such as low skill requirements for the required labor;

- Increases in the absolute value of the elasticity of labor demand (η), as measured by factors such as skill content, capital intensity, and other Marshallian factors of derived demand;

- Employer business characteristics that lower the probability of detection of noncompliance (λ), such as high levels of industry exit and entry; small average establishment size; and an ability to evade public scrutiny by operating in the underground economy.

Conversely, government regulators can raise the incentives for employers to comply (holding constant the characteristics of contractors listed above) by:

- Increasing the probability of violation detection (λ) either from increasing the probability of inspection and / or the chance that those inspections uncover violations;

- Increase the expected penalty levied for non-compliance with the law (D).[3]

B. Apparel industry dynamics and employer compliance

Product and labor markets in the apparel industry have many of the features that would lead one to predict high rates of noncompliance with minimum wage standards. In particular, the women's segment of the industry has been characterized by a more splintered production system where different enterprises carry out the design, cutting, and sewing and pressing /

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[3] Grenier (1982) modifies the Ashenfelter and Smith analysis by noting that under the Fair Labor Standards Act, the government does not levy penalties for first time violators, nor typically assess high penalties for repeat offenders. Instead, the Wage and Hour Division (the arm of the U.S. Department of Labor with authority for enforcing FLSA) requires offending employers to pay back wages to employees who have been underpaid during the period of time covered by the inspection (that is an amount equal to M-w). Grenier points out that since the typical "penalty" facing a firm is a fraction of the underpayment in wages, the penalty effect is far less than implied by the Ashenfelter and Smith model (which assumed a lump sum penalty of "D"). Chang and Erlich (1985) modify the penalty function by allowing it to grow with the degree to which the actual total wages paid by the contractor are lower than the mandated wages for that workforce. This modification in the model (which brings it closer to the actual penalty policy pursued by WHD) leads them to conclude that a "minimum wage enforcement policy requiring

packaging of apparel products (see Figure 1).[4] For example, a "jobber" may sell a design to

retailer, and then contract with a manufacturer for delivery of the product. Manufacturers

typically purchase and cut garment fabrics, 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 (i.e. sewing and associated assembly) except for some operations requiring higher levels

of skill content.

In general, as one goes to "lower" levels of apparel production (going from the top to

bottom of Figure 1) the level of competition intensifies and profit margin per garment diminish.

Sewing contractors compete in a market with large numbers of small companies, low barriers to

entry, and limited opportunities for product differentiation. This creates classic conditions for

intense price-based competition. Labor market conditions also tend to push wages towards the

legal minimum or below. Entry-level sewers can typically reach the standard rate for sewing in a

matter of months, making it relatively easy to substitute workers in the event of turnover

(Abernathy *et. al.* 1999). The apparel industry and sewing has always been attractive to

immigrants given its low skill barriers (e.g. Slovaks, Germans, and Jews at turn of century;

Hispanic, Chinese and Asian workers today (Kwong 1997)).[5] The consequent elastic supply of

workers and the relatively low skill level demands for them keep wage levels low and the

incentive to work long hours--even in inhospitable work environments--high. Given these

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the violating firm to pay only a fraction of the difference between the statutory minimum and the market wage per
unit labor will not constitute an effective deterrent" (p. 87).
[4] In the U.S., men's clothing--from the 1920s onward—is primarily produced in factory-type settings, with
manufacturers designing, cutting, sewing, pressing, and packaging products.
[5] See Commons (1901) in Part III of the Industrial Commission report entitled "Immigration and Its Economic
Effects."

market features, non-compliance has historically been a problem among the large number of contractors and subcontractors that assemble apparel products.

Regulatory attention has historically been focused at the contractor-level of the industry.[6] Table 1 presents characteristics of FLSA enforcement in the apparel industry since 1996 that can be used to assess the economics of compliance for the typical contractor. The WHD conducted a total of 3,226 investigations in the garment industry between the final two quarters of 1996 and the fourth quarter of 2000, or about 200 inspections in a typical 3-month period. This inspection activity translates into an annual probability that a given contract shop will receive an inspection (λ) below 0.10.[7] Penalties under FLSA are the civil penalties levied by WHD inspectors based on the scale and severity of non-compliance detected as well as the past history of the contractor.

Applying the enforcement outcomes in Table 1 to the employer trade-off depicted in equation (2) the values for the above equation can be roughly estimated for an apparel contractor with 35 workers. Given an average annual underpayment per worker ((M-w)) of $338[8] a median civil penalty (D) of $1,086, an average annual likelihood of inspection (λ) of .1, and assuming a relatively high labor demand elasticity (η) of -1.5, the potential cost of not complying is $121

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[6] Minimum wages (as well as regulation of overtime compensation beyond 40 hours in a work week and child labor) 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.

[7] This is based on the following calculation: There were roughly 10,000 establishments in the segments of the apparel industry that are the focus of WHD regulation. Given that there were about 800 investigations conducted annually by WHD investigators, the annual probability of inspection is about .08. Focusing on one particular city yields similar estimates: there were a total of 260 investigations in New York City in 1998. Given that there were about 2600 apparel establishments, the probability of inspection in that year was .10.

[8] This estimate of underpayments is based on the randomly selected set of first-time violators used for the empirical portion of this paper (see below). We do not use the back wage information from Table 1 because they are based on contractors that have been the target of enforcement actions, and therefore do not represent a typical contractor in the industry.

versus a benefit of $12,205, implying that an apparel employer should clearly choose not to comply.[9]

The incentives for noncompliance are further compounded by two factors: (1) contractors are not subject to civil penalties the first time they are found out of compliance with the law, thereby setting the value of D essentially to zero for first time offenders; and (2) a high proportion of contractors do not stay in business for more than two years. We can do a simple simulation for an employer facing the compliance decision for two time periods, where the employer faces an initial chance of detection, $\lambda_{t1}=0.1$. If a contractor is inspected in the first period and is found in violation of minimum wage, we assume that the chance of an inspection in the second period doubles ($\lambda_{t2}=0.2$); if the contractor is caught out of compliance in the first period, it must pay the back wages to underpaid workers, but no penalty. If caught a second time (and assuming the same average underpayment), the contractor must pay back wages plus the average expected civil penalty. Finally, we assume that in each period, a contractor faces a 0.80 probability of surviving to the next period. Under these conditions, a contractor should choose to underpay workers and violate minimum wage standards in periods 1 and 2. In fact, the incentives facing contractors are such that an employer will choose non-compliance even when found in violation of minimum wage requirements in the first period and facing a higher inspection probability and civil penalty in the second period.[10]

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[9] Given the above and assuming annual wages (w) of $8000, the first term in left hand part of the equation is $11,830 and the second term is -$375 (given the elasticity of -1.5); subtracting the second (negative) term from the first leads to an estimated benefit of not complying of $12,205. The estimate is an approximation because it uses observed levels for several key factors—in particular back wages owed to estimate (M-w) and the annual probability of inspection rather than the perceived inspection probabilities, both of which are not directly observable.

[10] Contractors will also choose not to comply in a three-period model even with similar escalation of inspection probabilities and penalties. These results are available from the author.

C. New methods of regulatory enforcement

Product market forces have been modified in recent years by a new dynamic in the channel of relations between retailers-apparel manufacturers-and textile producers. A new model of retailing--"lean retailing"-- takes advantage of information technologies such as bar codes and scanners, electronic data interchange, and industry-wide product identification standards to align more closely real-time sales data collected by retailers with the orders they place with suppliers. This system reduces the need for retailers to stockpile large inventories by improving their information about the underlying state of consumer demand, thereby lowering the costs associated with stock-outs, markdowns, and inventory, as well as reducing their overall exposure to inventory risk. The companies that have adopted lean retailing principles now dominate major retail segments (Abernathy, Dunlop, Hammond, and Weil 1999).

Retailers using these systems require suppliers to provide more frequent and smaller orders of products than under the traditional retail system. They also require apparel suppliers to meet rigorous logistic standards concerning delivery times, order completeness, and shipment accuracy. Lean retailing therefore changes the problem faced by an apparel supplier: Suppliers must replenish products on an ongoing basis, with some retailers now requiring replenishment of electronic orders in as little as 3 days. The change in retailer-supplier relations makes anything that disrupts the ongoing replenishment of retailers a major problem for apparel suppliers: replenishment interruptions lead to penalties, cancellation of orders, and even loss of retail customers for those suppliers. Given that retailers drive the dynamics of the apparel markets depicted in Figure 1, the increasing importance of time translates into a potential tool of regulatory enforcement.

Beginning in 1996, the WHD shifted its enforcement focus in response to these new

relations in the apparel channel. Rather than regulating labor standards one contractor at a time,

the WHD employed time sensitivity of lean retailers as a means of exerting regulatory pressure

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. Although this provision had limited impact in the traditional retail-apparel relationships

given the long delays in shipments and the presence of large retail inventories, invocation of the

hot goods provision now raises the costs to retailers and their manufacturers of lost shipments

and lost contracts.

In addition to ensuring that back wage claims are resolved, the new 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 contractors that it subcontracts work. This

entails the manufacturer agreeing to sign two types of agreements: an agreement between the

manufacturer (or jobber) and the Department of Labor that stipulate the basic components of a

monitoring system that will be operated by the manufacturer[11]; and an agreement that the

manufacturer signs with its contractors that set out how contractors will seek to comply with the

labor standards (U.S. DOL, 1998; 1999; Ziff and Trattner 1999; Weil 2002).

For the economics of compliance arising from this new regulatory approach to change

behavior, manufacturer monitoring would need to substantially change the chances of detection

(λ) and penalties (D) for contractors. For example, if manufacturer monitoring arrangements

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[11] These agreements, however, are entered in voluntarily by the manufacturer and their terms are therefore
negotiated out between the government and the manufacturer / jobber. The terms described here are taken from the

doubled the annual expected probability of detecting violations to .2, the effective penalty facing a contractor would need to be $48,819 to induce compliance for the median contractor; if the chance of detection rose to .33, the penalty would still need to be $24,780, more than twenty times the current level. We study whether the behavior of contractors under monitoring imply such dramatic changes in the underlying incentives to comply with minimum wage standards.

III. Data and Descriptive Statistics

A. Data source

The data for this study arise from surveys conducted by the U.S. Department of Labor Wage and Hour Division (WHD) of randomly selected apparel contractors in the Los Angeles area garment industry.   The universe for the 2000 random survey was comprised of all apparel industry firms appearing on the California manufacturing registration list for that year.[12] Using this comprehensive list of apparel manufacturers and contractors as the sampling universe, the WHD randomly selected establishments representing contractors operating in 2000.

Because of the high rate of turnover of contractors, a separate sub-sample was created to represent contractors that had been previously inspected and found in violation of the Act. A list of all contractors that found in FLSA violation in the prior 2 years was assembled and a random sample of these contractors was selected for similar investigation-based surveys, resulting in a total of 30 contractors. The group of prior violators is over-sampled as a result of this procedure.

Department of Labor's model agreement language specified in formal policy documents (see Wage and Hour Division, 1998).

[12] The California registration list 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…"

In order to deal with this problem, the sample is re-weighted according to the expected percentage of prior violators that should be present in a randomly selected sample given an underlying level of non-compliance at 55%, an annual level of inspections of 10% and annual contractor turnover of 25%.[13] Based on this, we re-weight the data in the regression analysis so that about 17% of the sample consists of observations for the prior violators.

Contractors selected from both lists received an "inspection-based survey" by WHD investigators that included a review of all payroll records for the prior 12-week period. The payroll review is similar to that conducted by WHD in regular inspection activities. In addition, the investigators collect information on other aspects of the contractors business, including employer size, years of operation, business structure (e.g. corporation or partnership), and types of products assembled. Information on the number of manufacturers that the contractor worked for over the past 6 months and whether or not those manufacturers had monitoring programs are also collected.

B. Compliance measures and descriptive statistics

Table 2 provides descriptive statistics regarding different measures of minimum wage compliance for the sample as a whole and split out by those contractors that had never received prior inspections and those with prior violations. In terms of overall compliance, 54% of contractors surveyed were not in compliance with minimum wage provisions of the FLSA, with an average of 8 employees per contractor were underpaid in some way. A typical contractor owed about $3700 in back wages for the time period under study. These estimates can be standardized given that contractors in the sample differ in size and that there is some variation in

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[13] These are based on estimated levels of non-compliance and contractor turnover from the sample of non-violators and an estimated inspection probability from industry data as set out in footnote 7.

the period of time of payroll review. One standardized measure used throughout this study is the average number of workers that were underpaid per 100 production workers employed. A second standardized measure is the average back wage owed per week per employee. These estimates are provided in the final two rows of Table 2.[14] With respect to these standardized measures of compliance, the differences in levels are not statistically significant between contractors that had no prior violations and those with prior violations.

The measure of performance typically employed in regulatory evaluations is employer compliance with promulgated standards. In the case of minimum wage, a contractor is considered as being out of compliance if one or more employees are found to have been underpaid during the investigation period. The obvious problem with this approach is that it does not delineate between employers who underpaid a small fraction of their workforce from those who underpaid a large proportion or between cases where employees experience gross underpayment in wages from cases where the typical infraction is minor.

The economics of minimum wage compliance and the impact of government interventions may differ dramatically according to what measure one employs. For example, it is possible that government interventions may have limited impact on the overall likelihood of violations (measured as one or more violations of the Act) even though it might substantially lower the number of violations per contractor, or the average severity of those violations. Accordingly, we measure contractor compliance behavior in terms of (1) overall likelihood of compliance (traditional measure of compliance); (2) the *incidence* of violation (measured as the number of violation per 100 workers employed); and (3) the *severity* of violation (measured as

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[14] The comparatively large size of back wages owed per contractor among prior violators relative to first time violators reflects a longer investigation period used by the WHD when surveying prior violators. For this reason, we use back wages owed per worker per week to provide a standardized measure of regulatory performance.

the back wage owed per week per worker). Table 3 provides all three measures of compliance,

and compares them across contractors with different characteristics. The overall extent of

minimum wage violations is significant across all three measures: about 46% of employers

comply with minimum wage; more than 27 of every 100 workers has experienced some degree

of underpayment, and the seriousness of violations is equivalent to underpaying every worker on

the employer by about $5.00 per week (in an industry where average hourly earnings were

approximately $8.00 in 2000).

Table 3 also provides evidence consistent with the predictions of the minimum wage

literature surveyed above.   For example, theory would predict that firms that have less elastic

demand for labor--either because of the skill content of the work or of its labor force--would be

less likely to violate minimum wage. One proxy for skill content is the product produced by a

firm: T-shirts require low levels of skill (i.e. short periods of time for sewers to achieve desired

levels of productivity). In contrast, dresses and jeans require higher degrees of sewing skill (with

the time required to hitting desired productivity standards from six to eight months). Consistent

with this skill content, compliance performance (as measured in all three dimensions) is lowest

for T-shirts in all three dimensions than for jeans and dresses.

Similarly, theory would predict that the more elastic the demand for the product (sewing

services), the more likely that firms will violate minimum wage standards. One proxy for price

elasticity is pricing power—here measured as the self-reported ability of a contractor to

renegotiate price if the delivery time for a product is moved up by their manufacturer customer.

Contractors who report an ability to change prices have a far lower likelihood to be in violation

of minimum wage (.176 vs. .616), a far lower incidence of violations (7.2 vs. 31.1) and

significantly less severity than contractors lacking this ability (0.56 vs. 6.02). The relation of

contractor size and age are also generally consistent with that predicted by theory: larger

contractors have a lower likelihood of being out of compliance with minimum wage and have

correspondingly lower incidence and severity levels than small contractors. Similar relations are

found for older businesses and compliance, reflecting that enterprises that have survived longer

are more likely to comply with the minimum wage (perhaps reflecting a desire of those

employers to retain their workforce). The mean values of these contractor characteristics are

provided in the first column of Table 5 and discussed in greater detail below.

IV. The impact of contractor monitoring on compliance

A. Incidence of monitoring

The frequency of different types of monitoring arrangements between contractors and

manufacturers is presented in Table 4.[15] The upper part of the table indicates the presence of

seven different monitoring features by at least one of the manufacturers for whom the contractors

worked in the past 6 months. For example, 59 percent of all Los Angeles contractors surveyed

did work for at least one manufacturer that conducted unannounced visits.

Although there are many potential combinations of the different monitoring activities,

certain combinations of activities have potentially larger impacts on contractor behavior than

others. We focus below on specific combinations of monitoring activities, grouped into two

categories, "low" and "high" monitoring, which indicate the stringency of monitoring

arrangements under which a contractor operates. The category low monitoring is assigned to

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[15] In the random surveys, contractors are asked to specify the names of manufacturers and / or jobbers for whom the
contractor provided services over a specified time period, and the monitoring activities (if any) that were conducted

contractors who report that at least one of their manufacturers is conducting at least one of the seven monitoring activities. It therefore represents the presence of *any* monitoring activity. About 74 percent of the contractors in Los Angeles could be classified as operating under Low monitoring.

High monitoring is defined according to the presence of two specific monitoring features: payroll review and unannounced inspections. This combination of monitoring activities provides manufacturers with the means of assessing the presence of possible minimum wage or overtime violations (payroll review) and a way of gaining a more realistic assessment of contractor operations (unannounced visits). We focus on these features because of their consistently significant impact on performance and complementary nature to one another.[16] High monitoring occurs when *all* of a contractor's manufacturing customers have *both* payroll review and unannounced visits in place. As a result, this very high level of oversight of a contractor by all of its customers represents the most stringent case of monitoring. The frequency of high monitoring was about 30 percent in 2000.

B. *Statistical model of compliance*

Given the economics of minimum wage compliance and the expected impact of monitoring, the overall likelihood, incidence, and severity of minimum wage compliance observed at contractor *i* can be modeled as:

$$MWPERF_i = f(Monitoring_i, Labor_i, Pdct_i, X_i) \quad \text{Where:}$$

by those manufacturers. We use this information to create the different categories of monitoring discussed in the text.

[16] We arrive at this particular combination of monitoring activities as the focus of subsequent empirical analysis through a factor analysis of the seven monitoring activities as predictors of compliance behavior. These results are available from the author. The importance of the two attributes is also supported by discussions with WHD investigators.

MWPERF: Minimum wage performance of contractor i (likelihood, incidence, and severity);

Monitoring: Presence and stringency of monitoring by manufacturers;

Labor: Elasticity of labor demand and average wage level of the contractor, as characterized by the average skill level drawn upon by a contractor;

Product: Elasticity of product demand (i.e. sewing services) for the contractor, as characterized by its ability to affect the price of services it provides to manufacturers;

X: Vector of other employer characteristics that are correlated with minimum wage performance, including size, age of the business, and prior inspections by WHD.

The effects of labor and product market characteristics have been discussed above. We capture contractor features associated with labor demand elasticity by including a variable for T-shirts that have the lowest skill content relative to other products. For product market, we use the response to survey questions regarding the ability of the contractor to change price in the event that a manufacturer moves up the delivery date of a product ("pricing power").[17]

We use the above definitions of monitoring to estimate the *incremental* effects of having no monitoring, some ("low") monitoring or stringent ("high") monitoring.[18] As a result, the coefficient on the low monitoring variable can be interpreted as the marginal effect of any monitoring relative to no monitoring and the high monitoring variable as equaling the marginal effect of that more stringent method relative to having any monitoring present.[19] Finally, we

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[17] Contractors are coded as having an ability to influence price if they answered "yes" to the following: "If manufacturers change the due date (move it up), do you renegotiate the contract cost with the manufacturer to adjust for any added expenses" and indicated that they renegotiate such costs "sometimes," "50/50," "frequently," "always."

[18] In the data, low monitoring is therefore always equal to 1 if high monitoring is equal to 1.

[19] The estimated monitoring effects should be considered carefully. Because the agreement to monitor contractors is made between the manufacturer and the WHD, coverage is not directly determined by the contractor. Because a typical contractor works for multiple manufacturers, some under requiring monitoring and some not, a monitoring effect on compliance cannot simply be regarded as an artifact of self-selection by contractors. At the same time, one cannot regard monitoring as completely exogenous: manufacturers wary of future embargos who enter into contractor monitoring agreements will engage in two types of activities: attempting to change the behavior of contractors and selecting contractors that have a higher probability of paying their workers the minimum wage. Because of the latter activity, monitoring—although not chosen by the contractor—is endogenous in that the

include variables for contractor size, age (measured as a dummy for those contractors that have been in business for more than 2 years), and a dummy for prior citations by the WHD for violations of the FLSA.

C. Likelihood of non-compliance

In order to gauge the impact of monitoring on the likelihood of overall non-compliance (measured as the presence of any violation of minimum wage by the contractor) we estimate a logit regression for monitoring, holding constant the other variables discussed above. The logit estimates are presented in Table 5 along with their implied marginal effects on compliance.

The presence of monitoring is associated with a statistically significant reduction in the probability that contractors will be in violation of minimum wage standards. The logit coefficient for "low" monitoring implies that the presence of any monitoring feature by any manufacturer reduces the likelihood of noncompliance by 0.32, all other factors held constant at their means. Non-compliance probability declines by an additional .31 given the presence of high monitoring features. These represent substantial improvement in compliance, implying that the presence of monitoring significantly raises the costs to contractors of failing to pay the minimum wage.

The variables controlling for other contractor characteristics included in the model also have their expected effects on compliance and are statistically significant and imply relatively large impacts on contractor behavior. In particular, a contractor's ability to negotiate price with

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selection criteria used by the manufacturer (reduce the chance of goods embargo) is correlated with contractor compliance. We attempt to decompose these effects in the next section. It should be noted that in the case of measuring the overall impact of monitoring, both effects can be attributed to the intervention. Thus, although endogeneity of monitoring cannot be ruled out, both manufacturer effects are relevant to the question of whether monitoring improves contractor behavior.

manufacturers (Pricing power) substantially reduces the likelihood of non-compliance in all four equations by an estimated 0.42. As predicted, producing a product with low-skill content (T-Shirt) raises the predicted level of non-compliance by 0.26 relative to producing garments with medium- or higher-skill content.

D. Incidence and severity of violations: Tobit Results

As discussed above, one limitation of using non-compliance as a measure of contractor behavior is that it tells little about the incidence or severity of minimum wage violations. That is, an employer will be classified as not complying with the law whether a small or large fraction of employees are underpaid or whether a typical worker has been grossly underpaid versus receiving very slight underpayments.

Ordinary Least Squares (OLS) regression estimates of the determinants of minimum wage incidence (violations per 100 employees) or severity (back wages owed per worker per week) will be biased because of the substantial number of contractors who have not committed any minimum wage violations. As a result, the dependent variables are left-censored and therefore subject to bias in estimates of the various independent variables. We correct for this problem by estimating a series of Tobit regressions for the two measures of minimum wage compliance.[20]

The estimated coefficients obtained from running a Tobit model are shown in Table 6. Since by construction, the dependent variables can never be negative, we also present the marginal effect of monitoring and other factors conditional on the dependent variable being uncensored. These coefficients more accurately depict the marginal effect of the independent

variables on the dependent variable, both because we are interested in the change in behavior of those who do not comply (dependent variable greater than zero), and also because the dependent variables cannot have a negative value.

The results indicate that the presence of any monitoring (Low) is associated with lower incidence and severity of minimum wage violations, although the coefficients are not statistically significant. However, the marginal effect of more stringent monitoring (High) is large, lowering the incidence of violations by 16.9 per 100 workers and reducing severity by $4.90. Minimum wage performance improves markedly with the stringency of monitoring.

The coefficients for pricing power are large (similar in magnitude to high monitoring) and statistically significant. The negative coefficient implies that contractors with an ability to affect the price of their products are more likely to comply with minimum wage than those lacking such ability. The variables for contractor size, age of business, and type of garment all have the expected sign but are not statistically significant in the regressions.

V. Interpreting the monitoring effect

There are several possible sources of the association between monitoring and regulatory performance. A "direct" impact of monitoring arises when manufacturer (or third-party) review of contractor payrolls, wage policies, and related activities during unannounced visits lead contractors to change their levels of compliance with FLSA. As mentioned above, however, this is not the only way that monitoring might affect performance.

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[20] Tobit models for an alternative severity measure, back wages per affected worker per week were also run. The sign and significance of monitoring and other key independent variables were similar for this measure of severity and are therefore not reported here. The results are available from the author.

Manufacturers that sign monitoring agreements might also seek out contractors that are more likely to comply with FLSA as a means of lowering risks of future embargoes. If many of the manufacturers with monitoring agreements in place undertake this kind of activity, contractors with higher compliance rates will end up sorting themselves with manufacturers that undertake monitoring while less-compliant contractors will end up with non-monitoring contractors.[21] Sorting effects still lead to real changes in the overall level of regulatory performance if an increasing percentage of manufacturers in the market undertake monitoring over time. In fact, this has happened over time in Los Angeles as the WHD has expanded the number of manufacturers that have agreed to undertake monitoring of their contractors (WHD 2001). Nonetheless, both the direct and sorting effects could contribute to the results depicted in Tables 5 and 6.

Because the survey data pertain to a group of randomly selected contractors in one year rather than the same set of companies followed over time, it is not possible to directly observe whether the measured effect arises from behavior changes induced via monitoring or sorting behavior. However, we can compare cases where manufacturers have different amounts of information about a contractor's likelihood of violating minimum wage provisions as a means of gauging direct versus sorting effects.

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[21] In an extreme case of pure selection, this sorting could lead to the appearance of monitoring effects, even though contractors did not change their behavior at all, but simply sorted themselves between monitored and non-monitored contractors. For example, imagine that there are 30 compliant contractors and 70 non-compliant contractors. The 100 contractors work for two manufacturers, so the overall percent of compliance is 30%. Prior to the imposition of monitoring, assume that compliers and non-compliers are distributed equally between the two manufacturers. Now imagine that one of the manufacturers signs a monitoring agreement with the government and the other does not. If there is pure sorting, all 30 compliers will end up pairing with the monitoring manufacturer while the 70 non-compliers will pair with the non-monitoring manufacturer. After sorting, the overall percent of compliance will still be 30%. However, if one measured the impact of monitoring, monitored contractors would have far better compliance performance than non-monitored contractors. In this pure selection case, a program effect would be incorrectly ascribed to monitoring.

An obvious test for the importance of sorting involves comparing the incidence of monitoring among contractors with prior WHD violations versus those without prior violations. Information on a contractor's prior violations of FLSA is public and published in the WHD's quarterly *Garment Enforcement Report*.[22] A manufacturer concerned about past behavior of contractors has ready access to this report and could use the information in selecting firms. If sorting was predominately driving the measured effect of monitoring, we would expect that contractors *without* a prior violation history would have a higher probability of being monitored (because they would be selected by manufacturers with monitoring) than contractors possessing a prior violation history.

In fact, the incidence of high monitoring among contractors with prior violations is about the same as the incidence of high monitoring among contractors without prior violations: the probability of high monitoring is .31 among contractors without prior violations versus .29 among contractors with a prior violation (the small difference is not statistically significant). This lack of association between a contractor's prior history of violation and the probability of being monitored therefore runs counter to the sorting story as an explanation of the monitoring effects in Tables 5 and 6.[23]

A second approach for examining direct and sorting effects involves separating the sample between recent industry entrants and established contractors. New contractors (defined in our analysis as those that had been in business less than two years) have no real track record

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[22] The *Garment Enforcement Report* provides the name, location, and violation details found for garment contractors inspected in the prior three-month period and found to owe back wages above $1000. The reports were first published in 1996 and released quarterly throughout the study period in Los Angeles.
[23] We further tested the sorting story by separating the sample into a "non-violator" and "prior violator" group and running the Tobit models in Table 6 on the two sub-samples. If the primary effect arose from sorting, we would predict that the monitoring coefficients would be small for the sub-samples. In regressions for both sub-samples, the high monitoring coefficient remains large and statistically significant, consistent with the direct effect story dominating the sorting effects. These model results are available from the author.

and because of this lack of information, manufacturer matching is less likely. An association between monitoring and performance among this group would therefore arise primarily from direct monitoring effects on behavior.[24]

For this analysis, we look solely at the randomly chosen sample of contractors and exclude the contractors from the violator sample entirely. We then separate the remaining random sample into older contractors (defined as those that had operated for more than two years) and new contractors. Sorting takes time, partially because it requires manufacturers to find contractors that comply with minimum wage but also because the process itself is based on reputation, which may take time for contractors to establish. Given the high rate of turnover in the industry, manufacturers will have comparatively little information about new contractors relative to older contractors. As a result, new contractors are much more likely to be paired with manufacturers for reasons other than matching.

Table 7 presents Tobit estimates for the non-violator sample only, further separated between "new" and "old" contractor sub-samples. Once again, we find significant evidence of an association between monitoring and performance after separating by the contractors' years in operation. Among contractors that had been in business less than 2 years, the estimated marginal effect for high on incidence is –22.3 and -$5.80 for severity for new contractors. In addition, the coefficients are similar to the values obtained in Table 6 for the whole sample, indicating that changes in behavior seem to prevail over sorting.

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[24] For sorting to operate, contractors must have characteristics that are observable at relatively low cost by manufacturers which, in turn, are correlated with probable FLSA performance. This may include the reputation of established contractors available from other manufacturers, the type of work (skill and quality level) it is engaged, the nature of it work force (skill, tenure, training), or the particular production system it employs (e.g. progressive bundle; modular production; Toyota system). Even though these are not direct measures of pay practices, they may be highly correlated with them.

In contrast, the empirical results are consistent with a sorting story among older contractors. Coefficients for high monitoring are not significantly different than zero, implying that there is no incremental effect of monitoring in this subgroup. Equally interesting, however, is the large and significant effects of *low monitoring* for older contractors (with predicted impacts on incidence of –26.1 and severity of -$12.1). These results imply that the presence of *any* monitoring features leads to large and significant reductions in performance. One interpretation of this result is that if manufacturers have significant information on prior contractor behavior, only threshold levels of monitoring are necessary to induce changes in behavior. That is, given prior information on contractor behavior, intensive monitoring implied is not required to elicit relatively large changes in contractor behavior. For this subgroup, sorting might be a more important part of monitoring effects because of the additional information manufacturers may have about these contractors.

VI. Conclusion

The literature on the economics of minimum wage going back to Ashenfelter and Smith (1979) predict that employers in certain industries will face significant incentives to violate those laws. In addition, subsequent literature (e.g. Grenier 1982; Chang and Erlich 1985; Yaniv 2001) predicts that the traditional structure of government enforcement creates insufficient regulatory incentives to overcome these behaviors because of the low expected penalties for violation and the correspondingly small probability of being detected out of compliance.

This paper provides strong empirical evidence to support the predictions of the minimum wage literature on the incentives for non-compliance in an industry like apparel that has conditions tailor-made for wide-scale non-compliance. Although the results of the study are consistent with the notion that traditional tools of regulation will not provide sufficient incentives

to improve labor standards, we find very strong evidence that new forms of regulation that draw on supply chain dynamics can have a substantial impact on improving labor standards outcomes. Government, it seems, can make a difference.

The use of supply chain pressure to create monitoring systems leads to changes in contractor behavior by altering the basic regulatory calculus facing those contractors. In particular it introduces substantial *private* penalties (D) that easily swamp in magnitude the civil penalties available to the government as well as appreciably increase the implicit probability of inspection (λ) facing contractors. We can roughly estimate the magnitude of those implicit penalties. Section II showed that the level of penalties required to tip contractors towards compliance given the amount of back wages owed by a typical contractor would be about $49,000 if that monitoring also led to a doubling of the *de facto* probability of detection (to $\lambda=.2$). This level of implicit private penalty is plausible given that a typical contractor in our sample has approximate annual sales of $1.0 million, and works for an average of 8-10 manufacturers in the course of a year. If being caught in violation of minimum wage leads to the loss by the contractor of one of its manufacturer's business, roughly equivalent to $100,000, the implied penalties arising under the new monitoring system could indeed induce substantial change in regulatory performance.[25]

Improved regulatory performance, however, will also impact overall employment in the industry. We do not estimate here the probable size of employment effects of improved regulatory performance. In general, to the extent that improved compliance leads to higher wages on the margin, there will be some employment loss associated with improved minimum

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[25] Figures based on data from Current Industrial Reports—Apparel (U.S. Department of Commerce, MQ315a(02), February 2002) and survey data regarding the number of manufacturers.

wage compliance.[26] As a result, the overall social welfare implications of these findings--

weighing both the benefits of improved compliance for employed workers and the costs arising

from employment reductions--raise the larger debate on the net benefits of minimum wage

policies discussed extensively elsewhere (e.g. Card and Krueger 1995).

Using supply chain dynamics as a regulatory lever has a number of implications beyond

its direct use by the WHD in the domestic apparel market. Supply chains link the U.S. retail

market with international sources of apparel production, thereby providing potential analogs for

those considering international labor standards regulation (Elliott and Freeman 2003; Sabel,

O'Rourke, and Fung 2000).   Monitoring is an important component of many of the international

labor standards systems currently in place (for example the Fair Labor Association's

arrangement for monitoring apparel companies). Many of those systems have been criticized for

their inability to induce changes in supplier behavior. The domestic monitoring system studied

here demonstrates the critical role played by embargo authority created by the FLSA in making

such a private system of monitoring effective.

Retail restructuring and the growing compression of time in supply chain relations

characterizes a growing set of industries, from food to computers to home building supplies. At

the same time (and in some cases related to the diffusion of information technologies) many

companies are spinning off parts of their production process and ceding them to networks of

contractors and subcontractors. This trend is well known in the manufacturing sector, for

example the spinning off of suppliers formerly owned by the major car companies. Creation of

multiple layers of subcontracting relationships has also become common in service sectors, from

the health care industry to the provision of janitorial services in commercial building.

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[26] Yaniv's model of minimum wage compliance (2001) suggests a more complicated picture in regard to the relation

Understanding developments in industry supply chains in this way may provide new opportunities to use private incentives to achieve public ends. Establishing where these dynamics are occurring across different industries and harnessing them to serve public policy objectives therefore may prove a fertile means for achieving public purposes in a wide variety of regulatory arenas.

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of compliance and employment levels.

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Figure 1:
Structure of retailer-manufacturer-contractor relations
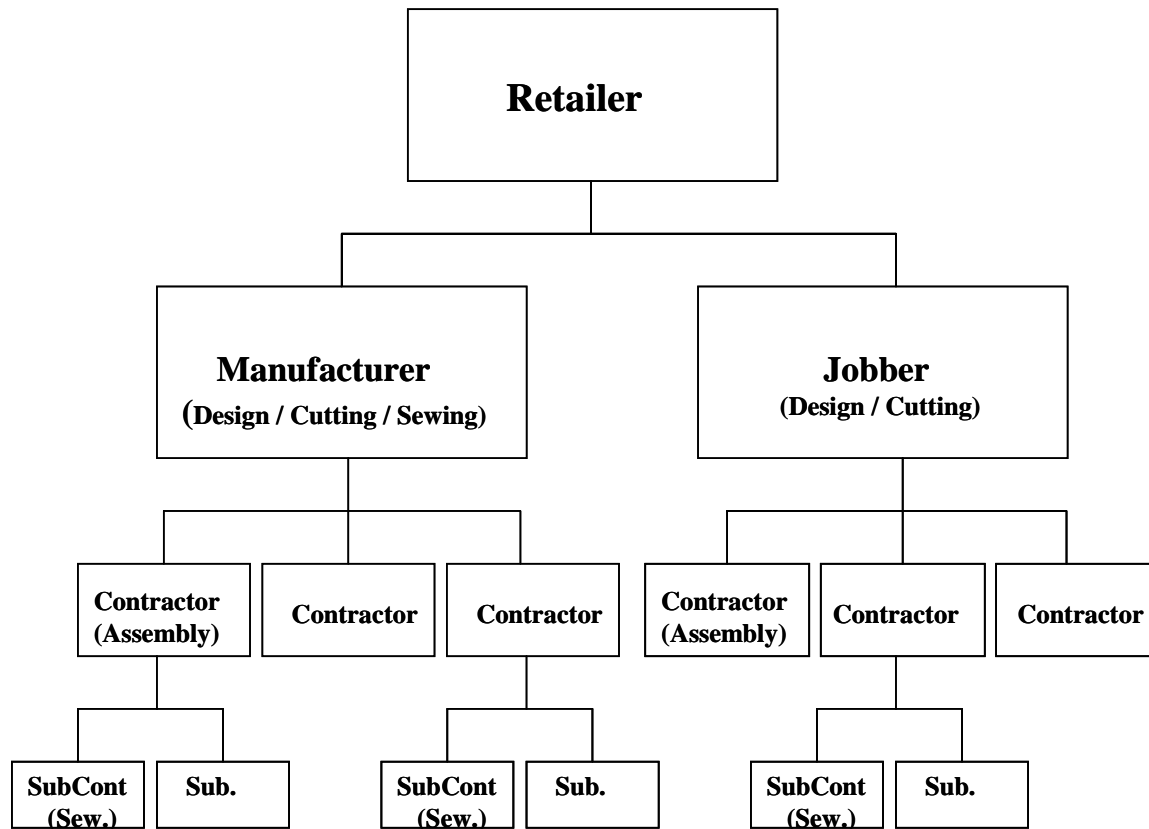
Table 1

Enforcement of FLSA in the U.S. Apparel Industry: 1996-2000 (Quarterly)

Quarter	No. of Investigations	Back wage per employee [a]	Civil fine per violator [b]	Back wage per violator [c]	% investigations w/ violations [d]
1996-Q3	223	$ 281	-	$ 5,338	58.7%
1996-Q4	194	$ 356	$ 919	$ 6,663	60.8%
1997-Q1	293	$ 376	$ 1,597	$ 6,727	42.0%
1997-Q2	212	$ 356	$ 511	$ 4,772	48.1%
1997-Q3	268	$ 495	$ 2,434	$11,296	39.9%
1997-Q4	212	$ 330	$ 1,135	$ 6,175	46.7%
1998-Q1	221	$ 268	$ 619	$ 4,132	36.2%
1998-Q2	201	$ 432	$ 1,094	$ 6,623	49.3%
1998-Q3	232	$ 347	$ 819	$ 5,590	54.3%
1998-Q4	154	$ 345	$ 1,960	$ 6,191	63.6%
1999-Q1	175	$ 493	$ 2,462	$ 11,567	31.4%
1999-Q2	82	$ 280	$ 2,352	$ 4,942	37.8%
1999-Q3	205	$ 380	$ 758	$ 8,232	53.2%
1999-Q4	115	$ 475	$ 1,136	$ 9,625	65.2%
2000-Q1	94	$ 462	$ 495	$ 10,278	41.5%
2000-Q2	100	$ 687	$ 1,079	$ 39,025	46.0%
2000-Q3	120	$ 1,028	$ 942	$ 24,769	53.3%
2000-Q4	125	$ 662	$ 3,750	$ 11,454	58.4%
Mean	**179.2**	**$ 447**	**$ 1,337**	**$ 10,189**	**48.8%**
Median	**197.5**	**$ 378**	**$ 1,086**	**$ 6695**	**48.7%**
S.D.	**61.8**	**$ 187**	**$ 927**	**$ 8,611**	**9.9%**

[a] Calculated as the total value of back wage settlements divided by the total number of workers receiving back wages. Back wage settlements with workers during quarter include payment for minimum wage and overtime wage violations documented by the Wage and Hour division in the course of investigations.

[b] Calculated as total value of civil penalties divided by the number of employers with violations of labor standards. Civil penalties represent fines to employers above and beyond back wage settlements assessed (but not necessarily collected) during quarter.

[c] Calculated as total value of back wage settlements divided by the number of employers with violations of labor standards during quarter.

[d] Calculated as the total number of investigations with one or more violations of FLSA divided by the total number of investigations during quarter.

Source: Author's calculations based on data from U.S. Department of Labor, Wage and Hour Division, Garment Enforcement Reports (issued quarterly).

Table 2
Regulatory Performance, Los Angeles 2000

	(1)	(2)	(3)	(4)
			Previous	
	Mean	**First time**	**violation**	**Difference**
Employer non-compliance with minimum wage	0.54	0.54	0.56	-0.02
Number of employees with minimum wage violations	8.1	6.50	11.1	-4.6
	(15.5)	(11.5)	(20.9)	(3.22)
Minimum wage back wages findings ($ / contractor)	3695.8	1999.1	6853.7	-4854.6**
	(11102.6)	(4597.3)	(17424.6)	(2257.95)
Number of employees with minimum wage violations per 100 workers	27.2	27.4	26.8	0.6
	(34.8)	(34.1)	(36.5)	(6.67)
Minimum wage back wages/week/employee ($)	5.1	6.5	2.5	4
	(10.6)	(12.2)	(6.4)	(2.17)

Standard errors are in parentheses. An asterisk denotes significance at the 10 percent level and a double asterisk for 5 percent. Column (1) depicts the sample means of the combined sample: recidivism and non recidivism, without any use of weights. Column (2) is based on the random sample of all apparel enterprises in Los Angeles. Column (3) is based on the random sample of prior FLSA violators. See text for description of these samples.

Table 3
Compliance and Regulatory Performance by Contractor Characteristics, Los Angeles 2000

	Percent of employers not complying	*Minimum wage violations per 100 employees*	*Back wages owed per worker per week ($)*
Overall compliance	0.544	27.2	5.12
		(34.8)	(10.64)
Quartile 1: size<=14	0.607	39.0	7.57
		(38.8)	(13.32)
Quartile 2: 26>=size>=15	0.583	21.7	3.24
		(29.1)	(8.60)
Quartile 3: 49>=size>=27	0.577	24.5	5.72
		(32.9)	(11.51)
Quartile 4: size>=50	0.400	22.0	3.56
		(35.7)	(7.69)
Contractor's business is < 2 years old	0.660	34.9	7.60
		(36.5)	(13.21)
Contractor's business is > 2 years old	0.446	20.8	3.03
		(32.2)	(7.36)
No pricing power: Contractor is unable to renegotiate price if delivery time changed	0.616	31.1	6.02
		(35.3)	(11.42)
Pricing power: Contractor is able to renegotiate price if delivery time changed	0.176	7.2	0.56
		(24.3)	(1.59)
Contractor produces T shirts	0.677	31.5	5.36
		(36.3)	(11.03)
Contractor produces dresses	0.590	26.4	4.45
		(32.4)	(8.85)
Contractor produces jeans	0.429	24.2	4.48
		(38.4)	(9.85)
N	103		

Standard errors are shown in parentheses.

Table 4
Monitoring Activity

Monitoring activity	Frequency
Monitoring activity employed by manufacturer	
Manufacturers review payroll	0.602
Manufacturers review time cards	0.633
Manufacturers conduct employee interviews	0.561
Manufacturer requires contractor to provide minimum wage information	0.561
Manufacturer discloses problems with MW to contractor	0.439
Manufacturer recommends corrective action to contractor	0.429
Manufacturer may conduct unannounced visits	0.592
Type of monitoring	
Low Monitoring: One or more monitoring activities by one or more manufacturers	0.735
High Monitoring: Payroll review and unannounced inspections by all manufacturers	0.299
N[1]	98

[1] Five observations omitted because the randomly selected establishment was a manufacturer. The empirical analysis draws on the remaining 98 observations.

Table 5

Logit Regressions of Determinants of Employer Noncompliance with Minimum Wage Standards, Los Angeles 2000

	Mean	Estimated logit Coefficients	Estimated dY/dX
Dependent (percent non-compliance among contractors)	0.456	0.456	--
Low monitoring	0.735	-1.50* (0.84)	-.323
High monitoring	0.299	-1.28** (0.60)	-.309
Pricing power	.165	-1.80** (0.83)	-.416
Ln(Size)	3.24	-0.29 (0.41)	-0.07
T-shirt	.30	1.16* (0.66)	.261
Bizage	.521	-.63 (0.57)	-.151
Violator	.35	0.40 (0.62)	.096
Constant	--	2.91** (1.18)	--
Prob > F	--	0.002	
F ratio (7, 89)	--	3.49	
N	97	97	

Standard errors are shown in parentheses. dY/dX is implied change in probability in noncompliance for discrete change in dummy independent variables from 0 and 1, all else evaluated at their mean values. An asterisk after the logit coefficient denotes significance at the 10 percent level and a double asterisk for 5 percent. The two samples (see Section III) were weighted so that observations from the sample of all registered contractors were considered to comprise 83% of the overall sample and prior-violator sample were considered to make up 17% of the overall sample.

Table 6

Tobit Estimates of Determinants of Compliance Performance with Minimum Wage Standards, Los Angeles 2000

	True coefficients		Marginal Effect: Conditional on being greater than zero	
	Minimum wage violations per 100 employees	*Minimum wage back pay owed per worker per week*	*Minimum wage violations per 100 employees*	*Minimum wage back pay owed per worker per week*
Dependent mean and s.e. (weighted)	27.32	5.83		
	(34.50)	(11.17)		
Low monitoring	-7.78	-1.58	-3.27	-.559
	(13.61)	(5.39)	(5.74)	(1.92)
High monitoring	-45.74**	-15.49**	-16.87**	-4.85**
	(15.20)	(5.18)	(5.17)	(1.52)
Pricing power	-46.02**	-13.07**	-15.36**	-3.81**
	(17.76)	(5.45)	(4.86)	(1.35)
Ln(Size)	-12.84	-3.05	-5.27	-1.06
	(8.00)	(3.01)	(3.36)	(1.04)
T-shirt	20.44*	5.30	8.96	1.94
	(11.96)	(4.41)	(5.53)	(1.69)
Bizage	-13.76	-4.25	-5.64	-1.48
	(12.39)	(4.93)	(5.03)	(1.70)
Violator	6.68	-3.37	2.82	-1.12
	(12.26)	(3.61)	(5.25)	(1.18)
Constant	75.76**	17.45		
	(22.39)	(8.81)		
Prob > F	.000	.006		
F ratio (7, 89)	5.74	3.09		
N	97	97	97	97

Coefficients are Tobit estimates of the predicted impact of independent variable on the compliance measure, conditional on it taking a value greater than zero. Standard errors for marginal effects are the corrected standard errors for these conditional estimates. An asterisk after the Tobit coefficient denotes significance at the 10 percent level and a double asterisk for 5 percent. The two samples (see Section III) were weighted so that observations from the sample of all registered contractors were considered to comprise 83% of the overall sample and prior-violator sample were considered to make up 17% of the overall sample.

Table 7

Tobit Regressions, new versus old contractors

	True 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	
Dependent	*1-New contractors*	*2-Old contractors*	*1-New contractors*	*2-Old contractors*	*1-New contractors*	*2-Old contractors*	*1-New contractors*	*2-Old contractors*
Low monitor	-5.559	-67.766[*]	2.281	-27.904[**]	-3.17	-26.10[**]	0.99	-12.08[**]
	(16.880)	(36.947)	(7.163)	(9.538)	(9.54)	(10.91)	(3.14)	(2.59)
High monitor	-47.358[**]	-4.089	-15.386[*]	-1.034	-22.30[*]	-1.20	-5.80	-0.28
	(20.698)	(32.178)	(8.752)	(8.182)	(11.69)	(9.50	(3.84)	(2.22)
Pricing power	a	-69.725	a	-25.546[**]	a	-17.05	a	-5.36[*]
		(45.026)		(12.272)		(13.29)		(3.33)
Ln(Size)	-11.780	-0.500	-5.392	5.284	-6.66	-0.15	-2.37	1.44
	(10.023)	(18.769)	(4.257)	(4.973)	(5.66)	(5.54)	(1.87)	(1.35)
Dresses	-35.673[*]	8.739	-12.238	5.220	-18.37[*]	2.61	-4.95	1.46
	(18.034)	(27.001)	(7.632)	(6.698)	(10.19)	(7.97)	(3.35)	(1.82)
Constant	91.740[**]	53.161	27.884[*]	5.518	51.83[**]	15.70	12.24[**]	1.50
	(34.297)	(41.327)	(14.483)	(10.611)	(19.38)	(12.20)	(6.36)	(2.88)
Prob > Chi^2	0.0172	0.0402	0.0879	0.0037				
Pseudo R^2	0.0447	0.0802	0.0367	0.1490				
Log likelihood	-128.355	-66.668	-106.417	-49.862				
N	33	29	33	29				

[a] Variable not included in model because all values equal to zero.

Standard errors are shown in parentheses. An asterisk after the Tobit coefficient denotes significance at the 10 percent level; a double asterisk denotes significance at the 5 percent level. These results are only for the random sample of registered firms (n=62) and does not include the random prior-violator sample.