Employers Gone Rogue: Explaining Industry Variation in Violations of Workplace Laws

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Abstract

Drawing on an innovative, representative survey of workers in Chicago, Los Angeles and New York City, the authors analyze minimum wage, overtime, and other workplace violations in the low-wage labor market. They document significant inter-industry variation in both the mix and prevalence of violations, and show that while differences in workforce composition are important in explaining that variation, it is differences in job and employer characteristics that play the stronger role. The authors suggest that industry noncompliance rates are shaped by both product market and institutional characteristics, which together interact with labor supply and the current weak penalty and enforcement regime in the U.S. The paper closes with a research agenda for this still young field, framing noncompliance as an emerging strategy in the reorganization of work and production at the bottom of the U.S. labor market.

Introduction

For low-wage employers, controlling labor costs has been a central motivation for experimentation with a range of strategies to reorganize work and production over the past thirty years. Researchers have documented the growth of alternative staffing models, various forms of subcontracting and outsourcing, the dismantling of internal labor markets, the cutting or outright abandonment of health and pension benefits, and the adoption of nonstandard pay systems (Appelbaum et al. 2003; Kalleberg 2011; Vosko 2010; Hacker 2006; Osterman 2000). The effect of these strategies on workers and job quality have been documented as well, in terms of wages, working conditions, job security and career mobility.

What has received less attention is the extent to which employers are also recalibrating their compliance with employment and labor laws in the search for higher margins. While the lack of representative data and accurate measures continues to be a significant barrier to researchers, an emerging body of evidence suggests that the systematic violation of employment and labor laws is common in a number of low-wage industries (Bernhardt et al. 2009; Theodore et al. 2012; Weil 2011). Examples of violations include disregarding minimum wage and overtime laws; requiring employees to work without pay before or after their shifts; retaliating against workers filing complaints or trying to organize; maintaining unsafe workplaces; and skirting workers' compensation obligations.

Especially important for industrial relations researchers—and documented in this paper—is that the prevalence of workplace violations varies significantly by industry, raising a host of questions about both the patterning and correlates of employer noncompliance. Are there distinct patterns in which types of laws are violated in different industries? How much of the industry variation in violations is explained by differences in workforce composition, such as reliance on undocumented workers? How much is explained by differences in employer-level characteristics? And what can we learn about the relative contributions of competitive conditions and institutional arrangements?

The goal of this paper is to begin to answer these questions using the 2008 Unregulated Work Survey, an innovative and representative survey of 4,387 workers employed in low-wage industries and occupations in Chicago, Los Angeles, and New York City. We document substantial inter-industry variation across five measures of workplace violations, and identify three groups of industries that differ not just in the prevalence but also the mix of violations. Using multivariate regression, we estimate that worker and employer characteristics each account for a large and statistically significant portion of the inter-industry variation in employer noncompliance. But while differences in workforce composition are important and should not be neglected (especially immigration status), it is differences in job and employer

characteristics that play the stronger role in accounting for industry differences in noncompliance.

As with other labor market research, we have a limited number of employer measures in our dataset to test explanations for these demand-side effects. But based on the benchmark findings in this paper, our interpretation is that industry variation in employer noncompliance with workplace laws is shaped by both product market characteristics (that impact ability to pay) and institutional characteristics (that shape managerial strategy), which together interact with labor supply characteristics. At the same time, all industries in the U.S. are currently facing a very weak penalty and enforcement regime, which in our view results in a high overall rate of noncompliance, around which industries then vary based on their particular demand- and supply-side characteristics.

In what follows, we first review theoretical treatments of employer noncompliance with workplace laws, as well as the (thin) evidence base to date. The second section summarizes our survey methods and data, highlighting the use of a novel form of network-based sampling. In the next two sections, we describe and then analyze differences in workplace violation rates by industry. The final section suggests an agenda for future research linking noncompliance with employment and labor law to employers' competitive strategy at the bottom of the U.S. labor market.

Explanations for Employers' Noncompliance with Workplace Laws

Standard economic theory suggests that employers—as profit-maximizing agents—will comply with legal mandates if the likelihood of detection is great and if penalties for violators are also correspondingly high (Becker 1968). Ashenfelter and Smith (1979) refined this argument by positing that firms will weigh the economic costs of complying with minimum wage laws against the probable costs of noncompliance (expressed in the form of back wages and penalties imposed by government enforcement agencies). The benefits of noncompliance are expected to rise the more that the market wage falls below the statutory wage rate.

Given this broad framework, what might account for variation across industries in the extent of employer compliance with workplace laws? We will document such variation in more depth below, but an initial data point comes from a series of compliance audits conducted in the late 1990s by the U.S. Department of Labor. The agency found that rates of compliance with the Fair Labor Standards Act differed substantially by industry: 22 percent of garment manufacturers in Los Angeles; 33 percent of day care providers in the Gulf Coast; 40 percent of poultry processing plants; 53 percent of full service restaurants in Tampa; 64 percent of auto repair shops in Richmond; and 70 percent of nursing homes nationwide (U.S. Department of Labor 2001).

It is highly unlikely that these industry differences in violation rates are the result of industry differences in either the strength of penalties or the strength of enforcement – that is, in the cost of noncompliance. First, penalties and damages under federal and state laws do not vary by industry (and are also widely acknowledged to be quite weak, see Estlund 2005). Second, while federal and state Departments of Labor have made scattered attempts at industry-specific enforcement, these initiatives have lacked both the scale and consistency needed to counter the inadequate and declining level of resources dedicated to wage and hour enforcement. The National Employment Law Project (2008) calculated that between 1980 and 2007, the number of federal wage and hour inspectors declined by 31 percent and the number of enforcement actions fell by 61 percent; in contrast, the civilian labor force grew by 52 percent during this period. And while the USDOL has added wage and hour investigators under the Obama administration, current federal staffing levels are still below their 1980 watermark (US Department of Labor 2011), with the number of state investigators significantly lower (Schiller and DeCarlo 2010). As a result, Ji and Weil (2010) put the probability that a national fast food chain restaurant would be inspected by a wage and hour investigator at about 0.8 percent in a given year.

If industries effectively are facing the same penalty and enforcement regime (and a weak one at that), then differences in workplace violation rates must be coming from the benefit side of the equation; that is, from differences in how much employers can potentially save by violating the law. Under Ashenfelter and Smith's (1979) framework and as elaborated by Weil (2005), both supply- and demand-side factors can affect the expected benefit from, and therefore the rate of, noncompliance. For example, industries employing unskilled, highly substitutable and otherwise vulnerable workers should be more likely to pay subminimum wages, all else equal. On the demand side, Weil (2005) found that small firm size, labor-intensive production and weak pricing power were correlated with noncompliance in a sample of garment manufacturers. However, lack of data has prevented researchers from assessing the relative weight of these explanations for a representative sample of industries.

Insight can be gained from the related literature on inter-industry wage differentials (Krueger and Summers 1988). We look to this literature because, in the absence of strong enforcement and penalties, violations of minimum wage and overtime laws can be treated as a form of wage setting at the bottom of the wage distribution. Our reading of this research is that worker characteristics (including both measured and unmeasured ability) explain roughly half of the variation in average wages across industries, but that significant and persistent wage differentials remain. Unresolved is how to explain the "true" industry effect, with rent sharing and efficiency wages the leading contenders in this debate (Krueger and Summers 1988; Gibbons and Katz 1992).

Based on these literatures, we hypothesize that workforce and employer characteristics each will account for a significant portion of the industry variation in workplace violations observed in our data. To the standard list of worker characteristics (education, age, gender and race/ethnicity), we add immigration status and English-speaking ability because of our focus on the low-wage labor market. Research suggests that lack of legal status has led employers in low-wage industries to prefer to hire undocumented workers, who are perceived as having a better work ethic and less likely to complain about substandard conditions (see Gomberg-Muñoz 2011; Moss and Tilly 2001; Peck and Theodore 2001; Waldinger and Lichter 2003). Employers may seize upon these workers' vulnerabilities by extracting cost savings directly in the form of depressed wages, driving down market wages in the process (Massey et al. 2002). In addition, given our focus on violations of workplace laws, we also include workers' knowledge of the minimum wage in our analysis. With all of the above variables, our prediction is that industries with higher proportions of less educated and otherwise disadvantaged workers will have higher noncompliance rates, because of their higher substitutability, legal vulnerability and lack of (informal) bargaining power.

In terms of job and employer characteristics, researchers have identified a number of factors as potentially relevant to explaining industry differences in wage setting. In the literature on inter-industry wage differentials, firm size, profit margins and capital-labor ratios have been found to be key predictors, and to a lesser degree, unionization, market concentration and trade penetration (Dickens and Katz 1987). From the industrial relations literature, we also expect differences in managerial strategy and the organization of work and production to play a role (Beynon et al. 2002; Osterman 2011), especially the use of subcontracting and other forms of nonstandard work (Weil 2011; Kalleberg 2000).

As with other research in this area, we are limited by the job/employer measures available in our dataset (though several exceed what is available in standard government surveys). At the job level, we measure full-time/part-time status, whether the employment relationship is temporary or short-term, and the number of employers last week (in our sample, this is a measure of decentralized employment relationships). In all cases, our prediction is that industries with higher proportions of nonstandard work arrangements will have higher violation rates, given that such arrangements can create greater legal distance between employers and workers. At the employer level, we measure firm size, the provision of multiple workplace benefits, and the use of nonstandard pay systems (such as flat weekly wages).¹ Our prediction is that industries with smaller employers who provide few benefits and use nonstandard pay systems will have higher violation rates. As we will elaborate in the discussion section, the

¹ We are not able to assess the contribution of unionization to industry differences in workplace violations because our sample did not include highly unionized sectors. That said, deunionization is likely making itself felt in the high violation rates in several of the industries we study, since unions have historically provided an important means of monitoring and enforcing workplace standards (Freeman 1987).

interpretation of these measures (especially firm size) will be less straightforward, because they are likely capturing the effects of several related but unmeasured employer characteristics.

Data and Methods: The 2008 Unregulated Work Survey

Existing data are inadequate to assess the current state of employer compliance with U.S. workplace laws. Standard government surveys such as the Current Population Survey and the American Community Survey do not gather the detailed data needed to measure workplace violations. Original surveys of workers or employers are rare, and confront significant challenges in accurately sampling the populations of interest and measuring violations of intricate legal standards.

In order to fill this data vacuum, a consortium of researchers designed and conducted the 2008 Unregulated Work Survey (UWS), a representative survey of 4,387 frontline workers in low-wage industries and occupations in the three largest U.S. cities, Chicago, Los Angeles and New York City.² We adopted two key methodological innovations to overcome the above sampling and measurement challenges. First, we used a recently developed sampling methodology, Respondent-Driven Sampling, that allowed us to reach the full range of workers in the low-wage labor market, including unauthorized immigrants and off-the-books workers. Second, we developed an extensive questionnaire that allowed us to rigorously assess whether employment and labor laws were being violated without relying on workers' own knowledge of these laws. In what follows, we give a brief description of the UWS; see Spiller et al. (2010) for full documentation of survey design and methodology.

The Sampling Universe

In order to be included in our study: (1) workers had to be age 18 or older, and currently working for an employer within the limits of Los Angeles County, Cook County (Chicago), or the five boroughs of New York City; (2) they had to be a frontline worker, meaning not a manager, professional or technical worker; and (3) they had to hold at least one job in a low-wage industry or occupation in the previous workweek. We excluded managers and professional/technical workers because many are exempt from the workplace laws examined in this study. Our focus on low-wage industries and occupations was driven by resource constraints; sampling the entire labor market would have been highly inefficient and cost prohibitive.³ We estimate that our sample represents about 1.64 million workers, which

² The project was housed at the Center for Urban Economic Development at the University of Illinois at Chicago; Cornell University; the National Employment Law Project; and the UCLA Institute for Research on Labor and Employment.

³ We defined a "low-wage industry" as one whose median wage for frontline workers was less than 85 percent of the city's median wage (Organisation for Economic Co-operation and Development 1994). We used Census 2000

represents about 31 percent of the frontline workforce, and 15 percent of the total workforce, of the three cities combined. By selecting industries and occupations that comprise approximately the bottom third of the frontline workforce, we struck a balance between scope and depth, a common tradeoff in designing labor market surveys.

Sampling Methodology

In light of the challenges of surveying hard-to-reach and vulnerable workers with standard sampling approaches, we adopted an innovative sampling method that operates through respondents' social networks. All workers have friends, family, or co-workers whom they trust and with whom they come into regular contact. Our approach relied on chain-referral sampling, in which survey respondents recruited people they knew into the sample, and importantly, to whom they could communicate that the survey was "safe" and would not trigger, for example, being reported to the immigration or tax authorities.

The best-known sampling method using this form of recruitment is "snowball" sampling, an approach that yields convenience samples that are not representative of the target population. To overcome this limitation, we used a newer form of chain-referral sampling, called *Respondent-Driven Sampling* (RDS), that was developed by Douglas Heckathorn (1997, 2007) and others (Salganik and Heckathorn 2004; Salganik 2006). Respondent-Driven Sampling is based on a mathematical model of the social networks that connect survey respondents. The model is then used to adjust the sample estimates to reflect respondents' differing probabilities of being captured by the survey.

The UWS sampling began with a small set of population members to be surveyed, which we identified through our contacts in each city. These "seeds" were then given a fixed number of coupons to give to other workers, with detailed instructions about who was eligible for the survey. These recruits then came to one of several survey sites (such as social service organizations, community colleges and churches), where the coupon was recorded, the respondent was surveyed, and the respondent was given a fixed number of coupons with which to recruit other workers. On average, the workers in our sample each recruited two other workers (respondents were compensated for completing the survey and recruiting other workers). This process was repeated over a period of about six months in each city, yielding the final sample of 4,387 workers, with an average of 7.5 waves of recruitment per city. As recruitment progressed, the sample became increasingly diverse, eventually becoming independent of the initial "seeds," a key feature of this method.

data to generate a list of industries and occupations in each city that fell below this threshold.

Estimation

RDS uses information collected during the sampling process to quantify features of the social network connecting respondents, and then uses these features to make inferences about population composition (Salganik and Heckathorn 2004). Each respondent's personal network size is measured by a series of questions in the survey, and the recruitment patterns that link respondents to one another are tracked during the survey fielding. This information allowed us to produce estimates that adjust for each individual's probability of being recruited into the sample and the non-random patterning of social networks (see Heckathorn (2007) for a description of the RDS estimator used for our analysis).

We did not detect strong network clustering on critical dimensions such as industry, occupation, employer, and most importantly, the workplace violations themselves. However, our study did identify strong network clustering within several racial/ethnic groups (the specific groups differed by city). While the RDS estimator adjusts for moderate non-random network clustering, the clustering was strong enough to warrant additional post-stratification, drawing on external data. Specifically, we post-stratified the RDS-adjusted estimates on race and nativity using the 2007 American Community Survey (ACS), with adjustments for undercounting of undocumented immigrants (see Spiller et al. (2010)).

The final weight used in this article consists of three components: an RDS weight based on features of the social networks we sampled; a within-city ACS weight based on the relative sizes of race/nativity groups; and a between-city ACS weight that adjusts for the relative size of each city's population. (In this article we do not disaggregate results by city but instead analyze the combined sample; for an in-depth treatment of city differences, see Milkman et al. 2011). In a future article we plan to compare in detail the UWS sample to the ACS sample; initial analysis shows that the UWS sample has larger proportions of women, Latinos and foreign-born workers, as well as lower median wages. Our strategy will be to use simulations and distributional methods to examine which differences are significant, requiring reconciliation of different measures, as well as their likely source, requiring a detailed analysis of each survey's sampling methodology and sampling frame. Most challenging for our comparison is that there are no precise estimates of the extent of undersampling by the ACS of undocumented workers (which constitute 39 percent of the UWS sample).

The Survey Instrument

The UWS is unique in that it measures a range of workplace violations using an original battery of detailed questions. Interviews typically lasted between 60 and 90 minutes, and were conducted in 13 languages. The questionnaire did *not* rely on workers having any direct knowledge about their legal rights, or about whether they had experienced a workplace

violation. Instead, our strategy was to gather raw “inputs” from workers—the necessary data about their hours, earnings and working conditions. We then used these data to determine whether or not a law had been violated, programming the complex matrix of federal and state statutes that set legal standards for wages, hours, meal and rest breaks, right to organize, workers’ compensation, and other dimensions of the employment relationship.⁴

The Workers and Their Characteristics

Table 1 provides an overview of our sample, combined across the three cities, and weighted to estimate the population characteristics of frontline workers in low-wage industries and occupations in the three cities. We estimate that this workforce consists of more women than men; significant numbers of people of color, especially Latinos; and a full range of age groups and education levels, although about three-quarters attained only a high school degree or less.

[Table 1 about here]

Also consistent with recent trends in the low-wage labor market, immigrants comprise a disproportionate share of this workforce, with 31 percent documented foreign-born and 39 percent undocumented foreign-born. (The sizeable number of the latter indicates our success in reaching this part of the labor market with the RDS methodology.) Given that we surveyed only workers in low-wage industries and occupations, it is not surprising that this workforce earns very low wages, with a median wage (in 2008 dollars) of \$8.00 an hour. Moreover, the wage distribution is quite compressed, with fully three-quarters earning less than \$10.00 an hour.

A First Look at Industry Variation in Workplace Violations

In Table 2, we begin with an overview of the industries represented in the UWS sample. We chose the level of industry disaggregation to maximize the number of industries, while ensuring sufficient sample sizes for calculating industry-specific violation rates. Reflecting the larger economy, much of this workforce holds jobs in the service sector—both private industries such as restaurants, retail, hotels and car washes, and public industries or industries dependent on public funding, such as K-12 schools, home health care and nursing homes. But a sizeable segment of the sample is also employed in manufacturing, construction and warehousing. Most of the industries are low-wage; those that are not appear in the sample because the respondent was employed in a low-wage occupation in the sampling frame. So for example,

⁴ In calculating the violation measures, we were careful not to double-count. For example, if a respondent worked five overtime hours but was not paid for those hours, we recorded an overtime violation; once these five hours were “tagged” as unpaid, they did not contribute to any other violation (for example, they could not also trigger a minimum wage violation).

primary and secondary schools are not low-wage industries, but teacher assistants is a low-wage occupation and was included in the sampling frame.⁵

[Table 2 about here]

The UWS collected information on a range of violations of employment and labor laws. In this article, we focus on five major violations where there are sufficient numbers of workers *at risk* of violations in the above industries. The concept of the risk set is critical: for many of the laws examined, not all workers in the sample were at risk of experiencing a violation. For example, only workers who actually worked overtime hours are at risk of experiencing an overtime violation. Or, some groups of workers are not covered by a particular employment or labor law and therefore cannot experience a violation of that law; for example, home health care workers are partially or wholly exempted from a number of federal and state workplace laws.

The five violations we analyze in this paper are as follows:⁶

- A minimum wage violation occurs when an employee is paid below the federal or state statutory minimum wage, whichever is higher. At the time of the UWS, the three states in our sample all had minimum wage rates higher than the federal standard: \$7.15 in New York, \$7.50 in Illinois, and \$8.00 in California.⁷ In our sample, all respondents were at risk of a minimum wage violation; of these, 25.7 percent experienced the violation.
- An overtime violation occurs when an employee works more than 40 hours in a given week, but is paid less than one-and-a-half times the regular rate of pay for the overtime hours. We also include in this measure violations of daily overtime laws, which in New York and California require some level of premium pay above a certain number of hours worked per day. In our sample, 24.1 percent of respondents were at risk of an overtime violation; of these, 75.6 percent experienced the violation.
- An “off-the-clock” violation occurs when an employee works before or after a regularly scheduled shift, but receives no pay for that time. In our sample, 24.1 percent of

⁵ In the administration of the survey, we went to great lengths to identify as accurately as possible the respondents’ employer – a key issue in this part of the labor market, where triangulated employment relationships are common. The initial survey question defined an employer as “the company or person that pays you.” In instances where the answer was not clear, interviewers worked with respondents to identify their employer (for example, by looking at check stubs, asking questions about who hired the respondents, etc.).

⁶ See Spiller et al. (2010) for the state and federal statutes and exemptions that were used in constructing these measures.

⁷ In Illinois and New York, tipped workers are covered by a separate, lower minimum wage; we include tipped minimum wage violations in this overall measure.

respondents were at risk of an off-the-clock violation; of these, 70.1 percent experienced the violation.

- A paystub violation occurs when an employee does not receive documentation of his or her earnings and deductions – this documentation is legally required, regardless of whether the employee is paid in cash or by check. In our sample, all respondents were at risk of a paystub violation; of these, 56.5 percent experienced the violation.
- A meal break violation occurs when an employee does not receive an uninterrupted meal break during his or her shift – either the meal break was shortened or was not given at all, or the employee was interrupted by the employer or worked during the break. In our sample, 82.4 percent of respondents were at risk of a meal break violation; of these, 72.6 percent experienced the violation.

All five measures show high rates of workplace violations in the UWS sample; the focus of this article is on the inter-industry variation in those violation rates. In Figure 1, we show boxplots of the distribution of industry violation rates, defined as the percentage of at-risk workers who experienced a given violation in each industry. There is substantial and statistically significant variation in all five measures at the industry level, raising a host of questions about both the patterning and correlates of employer noncompliance.

[Figure 1 about here]

Cluster Analysis

We begin by asking whether it is possible to identify distinct patterns in which types of laws are violated in different industries. In order to help reduce the complexity of the task, we used clustering methods combined with exploratory data-analysis tools, striking a balance between preserving inter-industry differences while still reducing the number of industries.⁸ As part of that process, we tested various degrees of clustering aggregation for statistically significant differences in violation rates.

Table 3 gives a summary of this analysis, which yielded three main clusters of industries: a high-violation cluster, a medium-violation cluster (which has two distinct groups within it), and a moderate-violation cluster. For each cluster, the table lists its industries and describes its patterning of violations.

⁸ We used hierarchical average linkage clustering with a Euclidean distance metric. Because we wanted to allow violations with higher between-industry variance to contribute more to the clustering, we did not standardize the industry-specific violation rates before clustering.

[Table 3 about here]

One theme that emerges from the table is that the five violations analyzed here do not move in lockstep. No cluster is high, medium or low on every violation, and within each cluster there is variation across industries in the patterning of violations. A second theme is that minimum wage and pay stub violations seem to be strongest in differentiating the three clusters—meaning there are generally high scores on these two measures in the first cluster, medium scores in the second, and low scores in the third. By contrast, there is more variability on how industries rank on overtime, off-the-clock and meal break violations, both within and between clusters.⁹

One possible explanation for these patterns is that minimum wage and paystub violations are what one might call the most direct and overt forms of noncompliance—they are difficult to commit and hide in workplaces with computerized payroll systems. Table 3 offers support for this explanation since the high-violation cluster appears to have more informal industries (such as car washes, beauty salons and private households). Overtime, off-the-clock and meal break violations, on the other hand, are more indirect, in that they are easier to commit and disguise when computerized payroll systems are in place. In that vein, consider the “moderate violation” cluster in Table 3: off-the-clock violations are above average for home health care, education and nursing homes, and hotels, convention halls and stadiums. These industries are more likely to have large employers, some of them either public sector or publicly funded, and paystub violations are uniformly low, signaling the use of automated payroll systems. In such a setting, it is considerably more difficult to pay workers less than the minimum wage—but having workers come in early or stay late without clocking in is more feasible.

Industry structure also appears to leave its stamp on the patterning of noncompliance. For example, meal break violations are high for caregiving industries such as domestic work and home health care (where often there is only one caregiver on-site), and in industries where production or service delivery is time-sensitive and not easily interrupted, such as restaurants and apparel manufacturing. And industries with variable scheduling are more likely to have overtime violations (restaurants, retail, beauty salons, car washes, dry cleaning and home health care).

⁹ Tetrachoric correlations (appropriate for analyzing relationships between binary variables) reflect this patterning. The correlation between pay stub violations and minimum wage violations is .56. Other correlations between the five violations are weaker, and in particular, off-the-clock and meal break violations clearly are capturing a somewhat different dimension of employer behavior; they are moderately correlated only with overtime violations.

Modeling Industry Variation in Workplace Violations

Next we use regression models to examine the relationship between workplace violations, industries, and a series of worker, job and employer characteristics. The outcome variable is a count of how many of five possible violations each worker experienced in the previous week: minimum wage, overtime, off-the-clock, pay stub, and meal break violations. Table 4 shows that the average worker in our sample experienced 1.9 violations in the previous week, out of an average of 3.4 violations for which he or she was at risk (or 52 percent).

[Table 4 about here]

This outcome variable is a count variable, so we expect it to follow a Poisson distribution where the mean and variance of the distribution are equal. Due to the right-truncation of our counts, the variance (1.7) is slightly smaller than the mean (1.9), but the outcome variable approximates a Poisson distribution well. We therefore estimate Poisson regression models, with several controls included to adjust for our sampling methodology and the three-city nature of the study.¹⁰ In particular, our models include city fixed effects, which Milkman et al. (2011) have shown are sufficient in the presence of other control variables (that is, city differences in violation rates are almost entirely a function of differences in demographic and industry composition). Our specifications also contain an offset variable that adjusts for the number of violations for which each worker was at risk. This means that the models are effectively estimating the proportion of possible violations a worker experienced. We estimate robust standard errors due to the lack of independence among sample respondents.

Model Results

Our modeling strategy is to regress the outcome variable—the number of violations experienced last week—on a set of industry indicators, and then to track the industry coefficients as we successively add worker, job and employer characteristics into the model. Of particular interest will be the extent to which the industry *variation* in violation rates decreases when other variables are included.¹¹

¹⁰ Because the survey used Respondent-Driven Sampling, the models do not meet the standard regression requirement that sample members were drawn independently of one another (Spiller 2009). To adjust the model's point estimates, we include two adjustment variables: each respondent's self-reported network size, and each respondent's recruiter's value for the outcome variable (adjusting for any correlation between the recruiter's and recruit's value).

¹¹ Ideally in this situation, one would fit hierarchical linear models (with a worker equation at the first level and an industry equation at the second), but our data contain too few industries, as well as significant variation in industry-specific sample sizes.

Table 5 shows the results of three regression models, with additional sets of variables added to the models as one moves across the table. All models fit reasonably well, with highly significant log-likelihoods, and reasonable levels of approximate R-squared values.¹²

We begin in model 1 by simply fitting the industry indicators. We show exponentiated coefficients, which are ratios of mean violation rates. For example, the mean violation rate for education, nursing home and hospital industries is estimated to be 56.3 percent of the violation rate for the grocery store industry (chosen to be the contrast category because its raw violation rate is roughly the average across the sample). More generally, the results in model 1 largely confirm the clustering analysis above, identifying the same industries whose violation rates are significantly higher than average, and those whose violation rates are significantly lower than average. The one exception is food and furniture manufacturing, which in the model has a below-average violation rate but in the cluster analysis is placed with the medium-violation group. That there would be some differences is not surprising, since the cluster analysis groups industries on their violation patterns across five different measures, while the Poisson regression model predicts a single outcome, the total number of violations last week. Most important, model 1 confirms the presence of significant inter-industry differences in workplace violations, with an approximate R-squared of .21.

[Table 5 around here]

In model 2, we add a group of worker characteristics measures. Examination of raw correlations (available on request) shows that gender, race/ethnicity, education, and English-speaking ability are each individually correlated with the violation outcome variable. But in model 2, those relationships are either insignificant or attenuated, indicating high levels of collinearity. By contrast, immigration status is highly significant even with other demographic controls in place: estimated violation rates for U.S.-born workers and documented immigrants are significantly lower than those of undocumented workers. Moreover, the two estimates are very similar to one another, indicating that nativity alone does not lead to greater vulnerability to workplace violations; rather, it is lack of authorization to work in the U.S. that is key. Finally, workers' knowledge of the value of the statutory minimum wage plays a significant role, even with related controls, such as education and English-speaking ability, in place.

In model 3, we add a group of job and employer measures. The first three variables added in this model are measures of the organization of work. Hours worked last week is significant, but not in the expected direction: the estimated violation rate for part-time workers is (moderately

¹² Pseudo-R² values for Poisson models are highly unreliable, so the "approximate" R² values presented are from linear models that are identical to the Poisson models, except that the outcome variable is the square root of the count (instead of the raw count).

lower) than for full-time workers. Further analysis suggests that full-time workers are more vulnerable to violations than part-time workers because they are more likely to have flat-pay arrangements while their hours are frequently adjusted from day to day and week to week. By contrast, part-time workers are more likely to have a set hourly wage and a fixed schedule. Also surprising is that there is no significant effect of working in a short-term job (measured as the respondent had a short-term job, was a temp worker, or found the job as a day laborer), both in this model and without controls. We speculate that the absence of a significant effect here is due to the overall ratcheting down of labor standards in low-wage industries, flattening out differences that would be more marked if the full labor market had been sampled.

More in line with expectations, when respondents had two or more employers in the previous workweek, they had significantly higher violation rates. In our sample, this variable is a measure of the organization of work. That is, respondents with more than one employer worked in jobs distinguished by decentralized employment relationships: almost all were housekeepers, child care workers, home health care workers, and residential construction workers. Note that this is not simply an occupation effect, since many other workers in these occupations had only one employer.

The final three variables added in model 3 are employer measures. Not surprisingly, employer size has a strong effect: large employers have an estimated violation rate that is two-thirds of that of small or medium employers.¹³ The provision of workplace benefits is a composite measure, counting whether the employer offered the respondent health insurance, gave the respondent paid sick leave or paid vacation leave, or ever gave the respondent an annual raise. Workers whose employers provided two or more of these benefits had a violation rate significantly lower than those whose employers provided none or only one. The final variable added in this model is pay type, a key measure because many workers in the sample were paid in non-traditional ways: flat weekly or daily pay, project-based pay, piece-rates, and so forth. Compared to hourly pay rates, such nonstandard pay systems are associated with significantly higher violation rates; they enable the shrouding of actual wage rates, and in some cases mechanically result in violations (as with flat weekly wages for long hours of work).

Decomposing the Variance in Industry Effects

Having analyzed the correlates of workplace violations across a range of worker, job and employer characteristics, we now return to our original question: what explains the significant inter-industry variation in violations? We answer this question in two ways.

¹³ This is a true measure of employer size; we designed the survey instrument to measure both establishment and firm size.

First, we return to Table 5 and scan across models 1 to 3 in order to assess how the size and significance of the industry indicators change with the addition of successive sets of covariates. Going from model 1 to model 2 (where worker characteristics are added), we see generally mild attenuation of the industry effects. The main change is that the construction and apparel manufacturing indicators become insignificant, meaning that their higher-than-average violation rates were a function of demographic composition (in the case of construction, this is almost entirely a story of the industry's high percentage of undocumented workers).

Going from model 2 to model 3 (where job and employer characteristics are added), we see more marked changes, with many of the estimated industry effects becoming weaker, and several industries losing significance altogether. For example, the home health care industry indicator becomes insignificant, which is driven by the addition of employer size (meaning that the lower-than-average violation rate for home health care is primarily a function of large firm size). The loss of significance for private households and the personal services industries is driven largely by the addition of the pay type variable, indicating that part of what distinguishes high-violation industries is their reliance on nonstandard pay systems.

The initial observation, then, is that job and employer characteristics appear to account for a greater portion of the inter-industry variation in violations than do worker characteristics. In Table 6, we conduct a more formal decomposition, by estimating the marginal strength of the industry indicators, in the presence of other covariates.

[Table 6 about here]

In the first row, when only the industry indicators are in the model, the industry chi-square statistic is 471.63. This is the statistic from a Wald test of the null hypothesis that all industries have equal coefficients in the model, which is rejected. In the second row, we add the industry indicators *after* the worker characteristics variables have already been introduced; the industry chi-square statistic falls to 313.97, or a 33 percent drop in the direct-industry effect. In the third row, we add the industry indicators *after* the job and employer variables have already been introduced. In this case, the industry chi-square statistic falls to 83.27, a much bigger drop of 82 percent in the direct-industry effect, roughly 2.5 times the impact of worker characteristics.¹⁴ And in the final row, we add the industry indicators after all worker, job and employer variables are in the model; here, the industry chi-square statistic falls to 75.62, representing an 84 percent drop in the direct-industry effect.

¹⁴ The fact that the percentages in models (c) and (d) add up to more than the overall reduction indicates the presence of a moderate amount of shared variance between the worker characteristics and the job and employer characteristics.

In sum, we have been able to account for a significant portion of the inter-industry variation in violations observed in the UWS sample. Moreover, our decomposition suggests that differences in job and employer characteristics are a stronger source of industry variation in violation rates than are differences in worker characteristics – on the order of 2.5 times as strong. Note also that some of the industry variation remains unexplained; we discuss additional, unexamined sources of variation in the next section.

Summary and Discussion

Historically, employers' violations of minimum wage, overtime, and other workplace laws have been understudied because of lack of data and accurate measures. But an emerging field of research is beginning to use administrative data and original surveys to document high and persistent rates of noncompliance in the low-wage labor market. In this paper, we analyzed the 2008 Unregulated Work Survey to identify a new dimension for empirical and theoretical study: the substantial variation at the industry level in the extent of employer noncompliance with workplace laws.

Using clustering techniques, we identified three main groups of industries that differ in both the prevalence and mix of workplace violations. Especially important is our finding that, while some industries stand out as committing the most overt violations (paying less than the minimum wage and paying “under the table”), other industries commit more indirect violations that are easier to disguise (overtime, off-the-clock and meal break violations). We also found that industry structure leaves its mark; for example, meal break violations are high in caregiving industries such as domestic work and home health care, where often there is only one worker in the workplace.

Using multivariate regression, we then found support for our initial hypothesis that worker and employer characteristics each account for a large and statistically significant portion of the inter-industry variation in workplace violations. But while differences in workforce composition are important and should not be neglected (especially immigration status), it is differences in job and employer characteristics that play the stronger role in accounting for industry differences in noncompliance – on the order of 2.5 times as strong.

This is an important empirical benchmark for future research on the drivers of wage theft and other workplace violations, because a first instinct in this still young field might be to attribute industry effects to supply-side explanations (similar to the initial waves of research on inter-industry wage differentials in the late 1980s and early 1990s). And to be clear, workforce substitutability, legal vulnerability and lack of (informal) bargaining power are crucial to understanding industry effects. But our findings suggest a rich agenda for exploring demand-side explanations, including industry-level and firm-level dynamics such as the state of

industrial relations, product market structure, managerial strategy in the organization of work, and, more generally, prevailing modes of economic restructuring.

As with other labor market research, we were limited in our exploration of demand-side explanations by the job/employer measures in our dataset, though our findings do provide baseline estimates. Surprisingly, we found only partial confirmation for the predicted role of nonstandard work arrangements. Part-time, temporary, and short-term jobs did not show significantly higher violation rates and therefore did not help to explain variation across industries in noncompliance. We suspect this finding results from the fact that our sampling universe is restricted to the low-wage labor market, flattening out differences in work structures that may be more marked across the entire labor market. That said, our measure of decentralized employment relationships was a strong predictor of higher violation rates; this of course raises the question of the role of subcontracting (not measured in our survey), which we discuss below.

By contrast, three employer measures were all highly significant in our models, as expected, and accounted for much of the demand-side portion of the inter-industry variance in noncompliance. It should come as no surprise that industries with larger firms had lower violation rates than industries with a preponderance of small firms. In addition to a true firm-size effect, however, this variable is likely also capturing the effect of related but unmeasured firm characteristics such as the size of profit margins, price-setting power, capital-labor ratios and organizational pay equity concerns, all of which we would expect to correlate with industry-level compliance rates (Katz and Summers 1989; Osterman 2011; Weil 2005). Likewise for the provision of workplace benefits, which was strongly correlated with lower industry violation rates. We interpret this variable as signaling the presence of a business model that favors competition on the basis of quality goods/services and high productivity over cutting labor costs (Cappelli et al. 1997). Finally, the use of nonstandard pay systems was a strong correlate of higher industry violation rates. We interpret this variable as measuring informality and, in particular, the probable absence of centralized human resource departments and computerized payroll systems. More than our other variables, it may also be capturing actual intent to violate the law on the part of the employer (since pay arrangements such as flat weekly wages easily obscure the true wage rate when hours vary).

Stepping back, our assessment is that in future research on workplace violations, researchers will need to conduct more original surveys and develop better measures, especially at the firm and industry level; otherwise, it will not be possible to sort through the validity of competitive and institutional explanations (similarly in the broader field of labor market research, see Osterman 2011). But based on the benchmark findings in this paper, our interpretation is that industry variation in employers' compliance with workplace laws is shaped by both product market characteristics (that impact ability to pay) and institutional characteristics (that shape

managerial strategy), which together interact with labor-supply characteristics to produce a risk matrix of noncompliance. Of particular interest will be research on how industry-level norms about violating the law are generated and diffuse over time, which qualitative research suggests plays an independent role (Jones, Ram and Edwards 2006; Bernhardt et al. 2007). At the same time, it is important to note that all industries are currently facing a very weak penalty and enforcement regime, which in our view results in an overall high rate of non-compliance, around which industries vary based on their demand- and supply-side characteristics.

We close by suggesting three topics that require particular attention going forward. Perhaps most important is that researchers devise strategies for measuring the use of subcontracting at the industry level.¹⁵ Janitorial and security services, food services, industrial laundries, warehousing contractors and waste management companies are all industries that have grown significantly over the last several decades, as large firms and public institutions externalized those functions to lower-wage subcontractors – thereby increasing the risk of wage and hour violations (Zatz 2008; Dube and Kaplan 2010). In a similar vein, Weil (2011) has analyzed data on franchising in industries such as fast food restaurants, and finds higher wage and hour violations among franchises compared to company-owned establishments. To be clear, subcontracting is not always driven by the desire to cut labor costs (Abraham and Taylor 1996) and the outcomes for workers are not predetermined (Erickcek, Houseman and Kalleberg 2003). But the economy-wide spread of subcontracting is undoubtedly central to the story of workplace violations in the 21st century, precisely because the practice can be used to create legal distance between employers and workers.

Attention will also need to be given to analyzing care work industries that depend on public funding streams, such as home health care, nursing homes and child care. Analysts have documented that public funding for these services (in the form of Medicaid, Medicare, and Child Care Development Block Grants) falls far short of need and therefore places significant constraints on the wages of caregiver jobs (Dresser 2008; McGrath and DeFilippis 2009). Further complicating the picture is that some forms of care work are either partially or wholly exempted from employment and labor laws (National Employment Law Project 2011). As a result, workers in these industries are some of the lowest paid in the U.S. economy and are at greater risk of wage and hour violations. In addition, the chronic underfunding of these public goods generates unregulated markets. The “grey market” in home health care, for example, is

¹⁵ We attempted to identify subcontracted jobs in our survey, but abandoned the effort because of workers’ inability to accurately identify whether their employer was a contractor or not. Similar to logic used by Dey, Houseman and Polivka (2009), however, we were able to conduct an indirect test for janitors. In the building services industry (meaning the employer is likely a contractor company), we found that the average violation rate for janitors was 48 percent (using the measure defined in Table 4). By contrast, for janitors employed in the education, finance and hotel industries (meaning they are more likely direct employees), the average violation rate was 28 percent (see Nissen (2004) for similar findings).

by some accounts as large as the publicly funded market; families who have exhausted or are not eligible for Medicaid coverage turn to the grey market to hire workers directly, often at substandard wages (Dawson and Surpin 2001).

Finally, a range of industries, including beauty and nail salons, dry cleaning, car washes, ethnic retail, and independent restaurants are highly informalized, with disproportionate numbers of small firms that employ some or all of their workers off the books, face razor thin profit margins, and themselves may not be registered businesses. The drivers of this informality are manifold. Researchers have noted that the growth of high-income households in large U.S. cities has increased the demand for labor-intensive personal services (Sassen 2001). But there is also a flip side of this dynamic that requires research and analysis, wherein growing numbers of workers earning very low wages need inexpensive goods and services. What emerges is an entire sub-economy of food vendors, dollar vans, restaurants, 99-cent stores and informal child care providers, who earn less than the minimum wage because their customers or relatives are too poor to pay more (see Wilson 2011). The payment of subminimum wages thus increases the demand for below-market goods and services, which can only be delivered through substandard working conditions.

In sum, our findings call for a deeper investigation of the thesis that noncompliance with employment and labor laws is becoming a key feature of employers' competitive strategy at the bottom of the U.S. labor market. In a range of industries, the evasion and outright violation of minimum wage, overtime and other laws is creating new industry conventions that normalize substandard jobs. These practices are not confined to marginal businesses; instead, violations appear to be occurring in industries where economic restructuring over the past three decades has been most intense, resulting in the dominance of low-wage, cost-cutting business models over high-wage, high-productivity strategies. Employers increasingly are organizing work in ways that obscure the lines of legal (and normative) accountability in the employment relationship, and weak penalties and public enforcement contribute to, rather than counteract, this trend. If, as we suspect, these practices are becoming more entrenched, further development of new datasets and analytic tools will be of the utmost importance.

Table 1. Worker Characteristics in the 2008 Unregulated Work Survey

		Percent of sample
Gender	Male	44.4
	Female	55.6
Race/ethnicity	Latino/a	68.3
	Black	14.8
	Asian/other	13.4
	White	3.4
Education	No high school degree, no GED	45.2
	High school degree or GED	30.9
	Some college or more	23.9
Legal status/ nativity	US-born	30.0
	Documented foreign-born	31.1
	Undocumented foreign-born	38.8
Median hourly wage (in 2008 dollars)		\$8.00
Sample size		4,387

Source: Authors' analysis of the 2008 Unregulated Work Survey

Table 2. Industry Distribution in the 2008 Unregulated Work Survey

Industry	Major occupations in each industry	Percent of workers
Restaurants and food services	Waiters, cooks, dishwashers, cashiers, food prep workers	18.0
Apparel manufacturing	Sewing machine operators, textile workers, testers, sorters	13.4
Private households	Housekeepers, child care workers, some home care workers	12.5
Retail and drug stores	Retail salespersons, stock clerks, cashiers, janitors	8.5
Residential construction and landscaping	Laborers, painters, grounds maintenance workers	7.6
Services to buildings and dwellings*	Janitors, security guards, housekeepers, grounds maintenance	6.9
Food and furniture manufacturing	Packers/packagegers, butchers, food prep workers, cooking machine operators, furniture finishers	6.8
Car washes, auto repair, dry cleaning and laundries, beauty and nail salons	Laundry/dry cleaning workers, car wash and car repair workers, personal appearance workers	5.8
Grocery stores	Cashiers, stock clerks, food prep workers, janitors	5.7
Home health care	Home health care workers	4.4
Warehousing and transportation	Packers/packagegers, laborers, freight movers, parking lot attendants, couriers and messengers	4.3
Education (K-12), nursing homes, hospitals	Teacher assistants, janitors, food service workers, janitors, nursing aides	2.3
Hotels, convention halls, stadiums, finance and real estate	Tellers, janitors, housekeepers, food service workers, cashiers	2.2
Social assistance	Janitors, child day care workers, security guards	1.6
Total		100.0

* For New York City, this category only included workers in small commercial and residential buildings.

Source: Authors' analysis of the 2008 Unregulated Work Survey

Table 3. Profile of Three Industry Clusters

Cluster	Industries	Patterns in violations (relative to average)
High violations	Private households	Very high on minimum wage and paystub violations (with one exception) Above average on overtime violations Mixed on off-the-clock and meal break violations
	Car washes, auto repair, dry cleaning and laundries, beauty and nail salons	
	Apparel manufacturing	
	Residential construction and landscaping	
Medium Violations	Warehousing and transportation	Average and sometimes below average on minimum wage and paystub violations Mixed on overtime, off-the-clock and meal break violations
	Restaurants and food services	
	Retail and drug stores	
	Services to buildings and dwellings	
	Grocery stores	Average and sometimes below average on all violations
	Social assistance	
	Food and furniture manufacturing	
Moderate violations	Home health care	Very low on minimum wage and pay stub violations Mixed on overtime, off-the-clock, and meal break violations (with home health care standing out as above average on all three)
	Hotels, convention halls, stadiums, finance and real estate	
	Education (K-12), nursing homes, hospitals	

Source: Authors' analysis of the 2008 Unregulated Work Survey

Table 4. Violation Outcome Variable

Measure	Mean	Robust Std. Err.
Violation Count	1.87	0.23
Risk Count	3.43	0.10
Proportion Violations	0.52	0.05

Source: Authors' analysis of the 2008 Unregulated Work Survey

Table 5. Poisson Regression Results for Total Number of Violations Last Week[‡]

Variable		Model 1	Model 2	Model 3
Industry	Grocery stores			
	Education (K-12), nursing homes, hospitals	0.563***	0.580***	0.712***
	Hotels, convention halls, stadiums, finance and real estate	0.582***	0.608***	0.708***
	Food and furniture manufacturing	0.753**	0.706***	0.792**
	Home health care	0.774***	0.807**	1.067
	Social assistance	0.851	0.89	0.865
	Retail and drug Stores	0.921	0.934	0.923
	Services to buildings and dwellings	0.922	0.918	0.944
	Warehousing and transportation	0.955	0.934	0.97
	Restaurants and food services	1.031	1.014	1.009
	Construction and landscaping	1.126*	1.058	0.918
	Apparel manufacturing	1.163**	1.062	0.964
	Car washes, auto repair, dry cleaning and laundries, beauty and nail salons	1.330***	1.272***	1.071
	Private households	1.445***	1.329***	1.062
Gender	Male			
	Female		1.031	1.035
Race/ethnicity	Latino/a			
	Black		1.034	1.053
	Asian/other		0.934*	0.912**
	White		0.962	0.951
Legal status/nativity	Undocumented foreign-born			
	Documented foreign-born		0.841**	0.890*
	US-born		0.826***	0.892***
Education	No high school degree, no GED			
	High school degree or GED		0.998	1.003
	Some college or more		1.009	1.02
English-speaking ability	Very well		0.972	1.039
	Well		0.995	1.014
	Not well			
	Not at all		1.078**	1.043
Worker's knowledge	Knows minimum wage level			
	Doesn't know or gave incorrect amount		1.130***	1.057**
Age			0.997	0.996
Age squared			1.000	1.000
Hours worked	Full-time last week			
	Part-time last week			0.925***
Short-term job	Not short-term job			
	Short-term job			1.032

Number of employers	1 employer			
	>1 employer			1.147***
Employer size	<100 employees			
	>=100 employees			0.733***
Employer benefits	Less than 2 benefits			
	2 or more benefits			0.791***
Pay type	Hourly wage			
	Non-hourly pay			1.380***
Constant		0.358***	0.408***	0.475***
Log-Likelihood		-5979.03	-5922.39	-5727.03
N		4178	4178	4178
Approximate R-squared		0.21	0.25	0.37

[‡] Estimates shown are exponentiated coefficients. Model includes offset of number of violations respondent was at risk for. Significance legend: * $p<0.05$; ** $p<0.01$; *** $p<0.001$

Source: Authors' analysis of the 2008 Unregulated Work Survey

Table 6. Industry Effects In the Presence of Other Variables

Model specification	Chi-square value for Wald test on industry indicators	Percentage reduction in industry indicator chi-square
a. Industry indicators	471.63 ***	
b. Worker characteristics + industry indicators	313.97***	33%
c. Job/employer characteristics + industry indicators	83.27***	82%
d. Worker + job/employer characteristics + industry indicators	75.62***	84%

Note: For models (b)-(d), Chi-Square test statistic is for Wald test on industry indicators, once other variables have been introduced. Significance legend: * $p<0.05$; ** $p<0.01$; *** $p<0.001$.

Source: Authors' analysis of the 2008 Unregulated Work Survey

Figure 1. Distribution of Workplace Violation Rates for 14 Industries

Note: The industry violation rate is defined as the percent of at-risk workers in an industry with a given violation.

Source: Authors' analysis of the 2008 Unregulated Work Survey

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