PROTECTING PAY: EMPIRICAL STUDIES ON WAGE THEFT AND WORKERS' RIGHTS

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To my parents, Jennifer and Mark.

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CHAPTER 1: CRIMINALIZING WAGE THEFT

I. INTRODUCTION

While the Fair Labor Standards Act ("FLSA") guarantees minimum wages, 17% of all U.S. low-wage workers experience minimum wage violations that amount to nearly a quarter of their personal income and $15 billion in annual lost wages (Cooper and Kroeger 2017; Galvin 2016). Minimum wage violations are just one form of wage theft, the failure to pay workers what they are owed. The phrase "wage theft" is provocative due to its moral connotations, with the word "theft" indicating an intentional criminal act.

But should wage theft be a crime? Civil penalties have always existed for violations of the FLSA, and from 2005 to 2017, states and localities passed 141 laws to combat wage theft (Lee and Smith 2019). Most of these laws strengthened civil penalties against wage theft, while a few states adopted laws allowing for misdemeanor prosecution. But beginning in 2019, Minnesota, Colorado, and California began criminalizing intentional wage theft in a unique and more severe manner—by tying the penalties for intentional deprivation of wages to the penalties already on the books for theft. In Minnesota, then, a ten-year prison sentence is possible for intentional wage theft above $5,000, just like property theft above $5,000. Unlike the other two state laws, Minnesota's law also mandated employers to post a worksite notice, and the law bolstered enforcement with new funding for investigators and new enforcement powers for agencies.

Some workers' rights advocates see the criminalization of wage theft as a positive development (Gerstein 2021; Verga 2005). They argue that criminal prosecution can better deter wage theft because it weighs heavier in the cost-benefit analysis of employers. Proponents of

harsher, criminal penalties suggest that such charges can send a message, empower workers, and serve as an expression of the moral wrong of wage theft.

But other academics are concerned about further reliance on prosecutions and the carceral state. Benjamin Levin, a criminal law scholar, raises empirical questions about the effectiveness of deterrence-based justifications for criminalizing wrongs. Levin highlights that for criminal acts by employers, and specifically for wage theft, there is very little evidence regarding the efficacy of criminal sanctions.[1] The evidence Levin points to is that of Galvin (2016), who analyzes a dozen wage theft laws and finds that legislation which introduces civil, treble damages is a more effective deterrent than wage theft laws that allow the possibility of criminal penalties. Others find further problems with criminalizing wage theft, including the tension and inefficiency of relying on police and prosecutors to protect immigrant workers from wage theft, when many immigrants seek to limit such interactions with authorities (Lee 2014).

Ultimately, the question of the effectiveness of criminalizing wage theft is an empirical one. Advocates rely on deterrence theory, suggesting criminal penalties are the strongest deterrents available, while critics counter that empirical evidence of deterrence for most criminal behavior is weak, and nonexistent for wage theft criminalization.

This paper fills the gap in this debate with an empirical analysis of the most severe wage theft criminalization laws to date. Using difference-in-differences analysis of the Current Population Survey's Outgoing Rotation Group (CPS-ORG) data, I find that these laws reduce minimum wage violations among hourly workers by 35% to 50% in Minnesota and California. In Colorado, similarly large declines in minimum wage violations are observed after dropping

[1] "Just as we do not know conclusively whether deterrence works as a general matter, there is not a broad scholarly consensus about whether prosecuting bosses would work to deter wage theft… Put simply, even if criminal law works to deter other bad conduct, there is no factual basis to conclude that it actually discourages bosses from violating wage-and-hour laws." (Levin 2021).

respondents in central city metropolitan areas to account for relevant, concurrent changes to local laws in Denver, Colorado. Each state's effects occur without any evidence of employers being imprisoned for wage theft.

Of the three states, the law in Minnesota has the most robust and consistent decline in violations and the strongest causal impact on wage gains. An event study analysis of Minnesota's wage theft criminalization law shows the immediate impact on minimum wage violations, whereas effects in Colorado are not as significant and those in California suggest a prior downward trend in violations. The effects in Minnesota are robust to using different time periods, sizes of minimum wage violations, samples of workers, and control states. A synthetic control analysis in Minnesota lends further support to the results. The paper supports other criminal deterrence literature and discusses the importance of supplementing sanctions with enforcement. This paper also adds to the criminal deterrence literature by studying the deterrent effects on crimes by employers, a less studied group.

This study finds severe criminal penalties have served as effective deterrents against wage theft, as supported by foundational theories of minimum wage noncompliance (Ashenfelter and Smith 1979). But in line with theory, perceptions of credible threats of enforcement are also necessary for deterrence. While these wage theft criminalization laws have reduced minimum wage violations in these states, stronger enforcement may be needed for these deterrent effects to persist.

II. WAGE THEFT OVERVIEW

Wage theft can take many forms—including minimum wage noncompliance, overtime pay violations, employee misclassification, rest and meal break denials, and tip stealing

(Bernhardt et al. 2009). Most empirical research, including this paper, focuses on the first: minimum wage noncompliance, or minimum wage violations. Research in New York City, Chicago, and Los Angeles found 26% of 4,387 low-wage workers experienced a minimum wage violation in the past week (Bernhardt et al. 2009). Similar rates appear when studying nationally representative datasets. Cooper and Kroeger (2017) use the Current Population Survey's Outgoing Rotation Group (CPS-ORG) to estimate that over 2013 to 2015, minimum wage violations are reported by 17% of all low-wage workers.[2] Galvin (2016) also uses the CPS-ORG and estimates that in 2013 minimum wage violations affected 17% of low-wage workers. These two studies estimate that impacted workers lose roughly 25% of their legally entitled earnings, and that nationwide, minimum wage violations account for $15 billion in lost wages (Cooper and Kroeger 2017; Galvin 2016). The CPS-ORG is not unique in these estimates. A U.S. Department of Labor report used both the CPS-ORG and another commonly used labor market dataset, the Survey of Income and Program Participation, to find 11-19% of low-wage workers in New York and California report minimum wage violations (DOL 2014).

Economists study the theory of minimum wage noncompliance primarily through cost-benefit analysis. Ashenfelter and Smith (1979) wrote the foundational paper on wage theft theory and formalized the expected costs and benefits of minimum wage noncompliance. In their model, λ is the probability that an employer is caught paying workers below the legal minimum wage, and D is the penalty for noncompliance. Expected profits for the firm are represented by:

$$E(\pi) = (1 - \lambda) * \pi(w) + \lambda * \pi(M) - \lambda * D$$

[2] There is no universal definition of low-wage worker. Cooper and Kroeger (2017) define low-wage workers as those in the bottom quintile of wage earners, while Galvin (2016) and the U.S. Department of Labor (2014) define low-wage workers as those earning below 150% of their minimum wage. These definitions similarly represent workers near the poverty level. This paper reports statistics in terms of all workers in the sample.

where *w* and *M* refer to the market wage and minimum wage, respectively. Any employer may earn $\pi(M)$ with certainty by always complying with the minimum wage, but if $w < M$, and thus $\pi(w) > \pi(M)$, the firm can earn greater profits from non-compliance if:

$$(1 - \lambda) * [\pi(w) - \pi(M)] > \lambda * D$$

This equation states that a profit-maximizing employer does not comply with the minimum wage law if the expected payout of not getting caught paying below the minimum wage is greater than the expected costs of getting caught.[3] Both enforcement, λ, and the severity of penalties, *D*, are critical to prevent wage theft, or else employers will pursue either of two approaches to noncompliance: evading detection, or "simply integrating noncompliance into ordinary business operations and accepting expected remedies as a cost of doing business." (Zatz 2008). Entire industries have been accused of operating under this model (Mattera 2018), and employers have admitted in depositions that the small fines were worth the gains from illegally underpaying their workers (Hallett 2018).

This rational choice model has been extended in a variety of ways across the criminal decision-making context (Apel 2013). Importantly, an employer's perception of the sanctions and enforcement regime matters more for a deterrent effect than any true measure of sanctions and enforcement. Studies on perceptions of sanctions suggest that potential offenders underestimate the severity of statutory sanctions, and that these misinformed perceptions are revised with more information or exposure to criminal justice (Apel 2022). Correspondingly, an increase in enforcement accompanied by a publicity campaign raises perceptions of apprehension. Finally, incarcerated individuals and those with criminal justice contact

[3] Ashenfelter and Smith extend their theory to consider how changes in wages impact employment via labor demand elasticities. The employer is less likely to comply with the minimum wage if the market wage falls below the minimum wage, $w < M$, or if the elasticity of demand for labor increases in absolute value. Incentives are higher for firms with low-wage workers and firms where wage changes lead to relatively large changes in employment.

consistently have more accurate perceptions of the sanctions regime (Pickett et al. 2015). Publicity of these wage theft laws, and the enforcement of them, should improve any underestimations of the sanctions, bolstering deterrence.

Chalfin and McCrary (2017) provide an overview of criminal deterrence literature, reporting that more severe sentencing, by itself, is not associated with strong deterrent effects. Instead, they report that deterrence is more often induced by changes in the certainty of apprehension. These wage theft laws provide a unique opportunity to study criminal deterrence of crimes by employers, a group of potential criminals which the criminal deterrence literature infrequently studies (Raskolnikov 2020).

With theoretical grounding and descriptive research, recent wage theft studies have focused on causal analysis of the determinants of wage theft. One such study found that increases in the minimum wage led to increases in minimum wage noncompliance three to eight years following the wage hike. (Clemens and Strain 2022). Comparing wages of young hourly earners in the CPS-ORG to the minimum wage in the state of the respondent, the authors find these increases in underpayments occur more frequently with minimum wage increases from legislation, rather than regular annual increases that are indexed to inflation. They further estimate that a one-dollar increase in the minimum wage, applied nationally, would increase subminimum wage payments by $1.16 billion due to the prevalence of minimum wage noncompliance.

Other causal research analyzes how to prevent wage theft. Galvin (2016) provided influential research on the effects of various laws aimed at deterring wage theft. Grouping laws into one of four categories—treble damages, civil and criminal penalties, small claims processes, or post-judgment penalties—Galvin finds that treble damage laws were associated with the

largest declines in minimum wage violations. However, these categories are not mutually exclusive. For example, treble damages and post-judgment penalties are forms of civil penalties, and nearly all the laws studied include at least one form of monetary deterrent. On the other hand, the effect of criminal penalties is difficult to assess from this study, as Galvin's grouping of three laws with criminal penalties appears imprecise, as he characterizes two states as introducing criminal penalties when they do not. The misclassified laws include a 2009 Iowa law that does not authorize criminal penalties and a 2011 Texas law that closed a small loophole to allow prosecutions of employers who were paying some but not full wages.[4] Galvin grouped the above two laws with a stronger 2011 New York law that increased civil penalties for wage theft and expanded criminal liability to more employers.[5] Because New York's law and its labor enforcement system are sufficiently different from those in Iowa and Texas, the effectiveness of such different wage theft laws could be better assessed by comparing them individually.

In theory, Galvin's primary finding—that laws with stronger deterrents prevent wage theft—is supported by Ashenfelter and Smith's work. Though, to employers who treat wage theft penalties as a cost of doing business, criminal penalties likely serve as an even greater deterrent than higher fines. Since 2019, a few states have enacted deterrents in the form of strong criminal penalties, specifically by tying penalties for intentional wage theft to the penalties already on the books for theft. However, the effects of these severe criminal sanctions—on reducing wage theft and on imprisoning employers—are unknown (Levin 2021).

Given the lack of evidence for the efficacy of criminal wage theft laws, the recent passage of such laws, and the surrounding academic debate, the need for more empirical work on this topic is particularly acute. Using data from the CPS-ORG, this paper provides relevant

[4] H.B. 618, 83rd Gen. Assemb. (Iowa 2009); S.B. 1024, 82nd Leg. (Tex. 2011).
[5] S.B. 8380, 2010 Gen. Assemb. (N.Y).

evidence on these questions by studying if recent state laws with severe criminal penalties for wage theft have had their intended effect.

III. STATUTES CRIMINALIZING WAGE THEFT

Minnesota, Colorado, and California have recently criminalized wage theft by tying the penalties for intentional wage theft with the penalties already on the books for more traditional forms of theft. For example, Minnesota has always had felony penalties for the crime of theft, but before its 2019 law, willful deprivations of employee wages were not eligible for felony penalties. Now they are.

The stated goal of these criminalization efforts is to deter wage theft more effectively than civil fines alone can do. As California Governor Gavin Newsom signed AB 1003 into law, the bill's author, Assemblywoman Lorena Gonzalez, highlighted the role of deterrence: "The system isn't working if we can't deter the most egregious actors from taking advantage of their own workers. This law sends a clear message: if you intentionally steal workers' hard-earned wages, you can actually go to prison." (CSADC 2021).

Criminal penalties for wage theft are not entirely new—a few states allow misdemeanors, with usually up to one month in jail (Lee and Smith 2019).[6] But these recent state statutes that are the focus of this paper introduce felony penalties with possible decades-long prison sentences in labor-friendly states. While federal law has also allowed for criminal penalties under the FLSA, enforcement of federal criminal penalties is extremely rare. From 2005 to 2016, there were only ten criminal convictions under the FLSA nationwide despite over 3,000 identifications

[6] D.C. CODE. ANN. § 32-1307(a) (2019) provides for jail times up to thirty days for a first conviction for willfully violating the D.C. Living Wage Act, and up to ninety days for further willful convictions.

of willful FLSA violations (Stansbury 2021). State regulation, enforcement, and prosecution play a much greater role, even if criminal penalties are already on the books through federal law.

A. Minnesota

In May 2019, the Minnesota legislature passed a law to take effect in August 2019, which added intentional wage theft to the list of acts constituting more traditional forms of theft.[7] Similar to property theft, intentional wage theft over a six-month period between $500 and $1,000 can result in imprisonment up to one year and/or $3,000 in addition to the back wages owed. This increases to up to five years and/or $10,000 for wage theft between $1,000 and $5,000, and up to ten years and/or $20,000 for wage theft between $5,000 and $35,000. The maximum penalties are reserved for wage theft above $35,000 and can bring a prison sentence up to 20 years and/or $100,000 fine. To determine the value of the wages stolen, the law allows for adding all wages, tips, and benefits in a six-month period. Wages likely cannot be aggregated across employees based on the statute's definition of employee as "any individual…," but this issue has not been formally resolved by courts.

Furthermore, the law allowed Minnesota's Department of Labor and Industry to immediately bolster its wage theft enforcement. The legislation funded seven new investigators dedicated solely to this law's enforcement, while the District Attorney's office funded new attorneys to prosecute employers. At the same time, the law mandated new worksite notice requirements for every employer in the state, such as posting wage and hour information on how employees should expect to be paid. Because these requirements were introduced in the same law and same time as the criminal sanctions, employers likely became aware of both the new

[7] MINN. CODE § 609.52.2(19).

requirements and the new penalties.[8] Finally, the law provided new investigatory authority for the Department of Labor and Industry commissioner and charged the attorney general with further enforcing the law. Since this law, Minnesota has continued strengthening enforcement. The state granted further authority to investigate criminal wage theft to the state's Commerce Fraud Bureau in mid-2022 (Nesterak 2022).

B. Colorado

In Colorado, HB 19-1267 was signed in May 2019 to take effect on January 1, 2020 and reclassifies the failure to pay wages or paying below the minimum wage as the crime of theft.[9] Before HB 19-1267, failure to pay wages or paying below the minimum wage in Colorado could only result in misdemeanors that carried penalties of $300 to $500 and/or 30 days in jail. Under the new law, wage theft became legally equivalent to theft, with matching penalties. This means that intentional wage theft over $2,000 is a felony, which usually carries penalties of at least a year in prison. Greater theft amounts yield higher class felonies and resultant penalties. Additionally, the law removed exemptions from criminal liability for employers who were in bankruptcy in an effort to remove a frequent defense by employers. The primary legislative purpose of these enhanced penalties was to prevent human trafficking for labor purposes. The law did not provide funding for enforcement or require employers to post worksite notices.

The city of Denver has taken even greater initiative against wage theft than the state. In July 2021, Denver enacted an ordinance to allow wage theft prosecution for violations under

[8] If employers did not learn about these criminal sanctions on their own, the Minnesota Department of Labor and Industry widely publicized these new penalties and issued employer guidance and an FAQ document shortly after the law went into effect. According to its commissioner, the department immediately went on a "publicity tour" trying to inform businesses about the new law and how to comply (Bierschbach 2019).
[9] H.B. 19-1267 Gen. Assemb. (Colo. 2019).

$2,000.[10] In addition to more prosecutions of smaller and more common amounts of wage theft, the ordinance established a Wage Theft Unit within the City Attorney's Office and removed another employer defense of promising future wage payments (Metzger 2021). The penalties associated with this city ordinance are a fine up to $999, and up to 300 days in jail. Denver has continued its citywide enforcement against wage theft with another ordinance in 2023 empowering their city Auditor with new civil enforcement options (Rubino 2023).

Further complicating the analysis of Colorado's law, its January 2020 enactment coincides with not only a raise to Colorado's minimum wage, but the start of even higher, annual raises to the city of Denver's local minimum wage. Based on Clemens and Strain (2022), we can expect more frequent minimum wage violations following these higher minimum wages. Thus, because the city has higher local minimum wages starting in 2020 and different enforcement options and strategies than the state, my analysis considers both including and excluding Colorado CPS-ORG respondents who live in a central city metropolitan area.[11]

C. California

Approved in September of 2021, California enacted Assembly Bill (AB) 1003 on January 1, 2022, to criminalize and better deter wage theft.[12] Prior to AB 1003, willful deprivations of over $950 of a person's money, labor or property qualified as grand theft, which could be prosecuted as a felony. AB 1003 strengthened this deterrent by also allowing grand theft charges to be brought if more than $2,350 was taken from two or more workers in a 12-month period.

[10] Denver Revised Municipal Code § 38-51.9
[11] In the CPS-ORG, a respondent's metropolitan status can be in a central city, outside the central city, not in a metro area, or central city status unknown. This status is determined by the Census Bureau, limiting the possibility of measurement error by respondents incorrectly self-reporting their metropolitan status.
[12] A.B. 1003, 2021-22 Leg. (Cal. 2021).

AB 1003 specifically targeted wage theft by authorizing that wages, gratuities, benefits, and other compensation of either employees or independent contractors could be the subject of the grand theft prosecutions.

While AB 1003 was not California's first criminalization of the intentional deprivation of wages, this law was more protective of earnings of both employees and contractors, and it more clearly equates wage theft with the crime of grand theft. Finally, unlike the other wage theft criminalization laws, AB 1003 authorizes pooling wages across multiple workers when determining the wages stolen. For employers with more than a few workers, this is a new deterrent against many instances of minor wage theft that couldn't earlier qualify as grand theft.

D. Enforcement

Even if states enact criminal sanctions for wage theft, the enforcement of these sanctions shapes the deterrent effect. Employers are less likely to follow a law that is only on-the-books than one that they perceive as regularly enforced. Evidence of the enforcement of criminal sanctions for wage theft shows a pattern of enforcement only for egregious violations, only in states with criminal wage theft laws, and only with district attorneys willing to bring such charges. Even still, these charges are rare.

At the federal level, the FLSA theoretically allows criminal prosecutions of minimum wage and overtime pay violations, but convictions are exceedingly rare. Anna Stansbury (2021) reports data from the Bureau of Justice Statistics showing that, from 2005–2016, only ten criminal convictions occurred related to minimum wage and overtime pay violations under the FLSA. Comparing these convictions to over 2,900 willful civil violations identified by the

Department of Labor, even conditional on the violation being identified and classified as willful, employers only faced a 0.4% chance of a federal criminal conviction.

The enforcement of Minnesota's wage theft criminalization law is easily observable due to the Minnesota Judicial Branch's public criminal charges database (Minnesota Judicial Branch 2022). This database provides the number of criminal charges and criminal convictions by statute over the past five full years, including the specific subsection of the statute. With Minnesota's law going into effect in August 2019, this database shows only two charges under the new "theft of wages" subsection—one felony charge and one misdemeanor charge, both in 2021. Neither charge resulted in a conviction.

Similarly, criminal prosecution in Colorado is scarce. In response to a Colorado Open Records Act request, the Denver Department of Law reports that throughout 2022, there were nine wage theft cases investigated by the City Attorney's Office under Denver's wage theft ordinance. Just one individual was prosecuted for wage theft, and this charge did not lead to incarceration. This is similar to statewide enforcement levels of misdemeanors for failure to pay wages from 2016 to 2018 in Colorado, where one conviction occurred (Creighton 2019). Finally, as of October 2022, the California District Attorney Association reported no known cases filed under the state's new 2022 law (Kuang and Kalish 2022).

So far, with nearly zero criminal enforcement of these wage theft laws, concerns about overreliance on the criminal system and increasing rates of imprisonment have not come to fruition. At the same time, without significant enforcement, the effectiveness of each law must be called into question. The next section describes the wage data used to analyze the effect of these laws on minimum wage violations and wages in Minnesota, Colorado, and California.

IV. DATA, SAMPLE SELECTION, AND METHODOLOGY

The CPS-ORG is the best publicly available dataset to study wage theft, with several prior studies relying on it (Galvin 2016; Cooper and Kroeger 2017; DOL 2014).[13] The CPS-ORG is a collection of CPS respondents that report detailed wage and hour information in their final month of reporting their survey to the CPS. As noted above, this study focuses on a specific type of wage theft, minimum wage noncompliance. Minimum wage noncompliance is the form of wage theft most analyzed in empirical studies because it is the most obvious to identify in publicly available datasets. Identification of minimum wage violations is arguably more precise in the CPS-ORG than in other datasets, given its detailed questions on wages.

Further, previous authors have corroborated CPS-ORG estimates of minimum wage noncompliance with other administrative datasets. Cengiz et al (2019) compare wage distributions inferred from administrative unemployment data to CPS wage distributions in three states. The authors find similar rates of workers with minimum wage violations in each dataset.[14] Finally, Clemens and Strain (2022) report several findings on minimum wage noncompliance that they analyze to be unexplainable by measurement error in the CPS.[15]

[13] The U.S. Department of Labor analyzes minimum wage violations in both the CPS-ORG and the SIPP, but reports that the SIPP overestimates minimum wage violations due to oversampling low-wage workers. Additionally, hourly wages in the SIPP include overtime, tips, and commissions, which the CPS-ORG can exclude to better identify minimum wage violations.

[14] "A similar number of jobs are present just below the minimum wage in the two data sources, albeit in some cases there are slightly more in the CPS (e.g. in WA 2005-2009). When we pool all three states, the CPS and the administrative data exhibit virtually the same distribution below the minimum wage." Cengiz et al (2019).

[15] One finding is that minimum wage violations are less likely when states have indexed their minimum wages to inflation, rather than increasing a minimum wage through legislation. Clemens and Strain state that "measurement error is not a plausible explanation" for this finding.

Measurement error can potentially interfere with estimating minimum wage noncompliance in the CPS-ORG. To ensure accurate estimations, I apply four sample restrictions in the CPS-ORG, based on those made previously by Clemens and Strain (2022), in my primary estimates. First, I focus my analysis on hourly workers since they are explicitly asked to state their hourly wage in the CPS-ORG. In contrast, inferring the hourly wage of non-hourly workers requires dividing usual weekly earnings by usual hours worked, which introduces uncertainty. Second, I focus on workers who report they do not earn overtime, tips, or commissions, to avoid tipped workers who may legally be paid subminimum wages.[16] Third, I drop workers who have a non-zero probability of being exempt from the FLSA's minimum wage according to Department of Labor analyses of the CPS-ORG.[17] Fourth, I exclude workers with hourly wages that are imputed by the Bureau of Labor Statistics, rather than directly reported by the worker.[18]

Table 1 provides descriptive statistics regarding how these restrictions impact this sample in the CPS-ORG nationwide. While, in column (1), the CPS-ORG reports 5.9% of private sector, non-exempt, hourly workers have a wage lower than their corresponding minimum wage, this figure drops to 3.7% in column (3) when dropping workers with imputed wages and workers who report earning overtime, tips, or commissions (OTC). The analysis that follows uses the sample from column (3) in Table 1.

[16] A subminimum wage is a legal wage, below the effective minimum wage, that may be paid to tipped workers so long as tips during the pay period raise the worker's wage to meet or exceed the effective minimum wage.
[17] Clemens and Strain use DOL analysis that assigns probabilities of being exempt from the FLSA to occupational codes in the CPS-ORG. The authors drop any occupation codes that have a non-zero probability of being exempt and are salaried. A small number of named occupations are exempt based only on the duty test and not on the salaried test. These occupations include physicians, lawyers, teachers and administrators in educational establishments, and outside sales workers (DOL 2016).
[18] The Bureau of Labor Statistics imputes a response for the hourly wage question if a respondent does not answer that CPS question. These imputed responses are designed to be accurate, but Hirsch and Schumacher (2004) show systematic match bias in the CPS imputed earnings estimates when studying attributes that are not used as match criteria in the imputation method. To reduce concern of match bias from imputed wages, I drop imputed earners.

Table 1: Sample Selection Statistics of Workers in the CPS-ORG

	(1) U.S. hourly workers	(2) Hourly workers with non-imputed wages	(3) Hourly workers with non-imputed wages & without OTC	(4) Workers in (3) with minimum wage violations
Minimum wage violation	5.9%	4.4%	3.4%	100%
Hourly wage ($2020)	18.50	18.36	18.00	9.52
Usual hours worked per week	35.4	34.5	33.9	25.8
Age	39.0	38.3	38.4	32.0
Female (%)	49.3	50.0	52.3	57.0
White (%)	76.3	78.2	77.7	75.6
Black (%)	15.5	13.7	14.1	14.0
Hispanic (%)	22.8	23.2	24.4	36.1
Union (%)	8.4	8.9	7.8	2.9
No High School Diploma	12.7	13.2	14.3	32.7
State Macroeconomic variables:				
FHFA Housing Price Index	483.3	480.2	483.4	560.7
Income per capita ($1,000s)	57.5	57.5	57.5	61.6
Sample size	450,414	269,010	198,148	6,180

Source: Data from 2017-2022 CPS-ORG, using earnings weights.
Notes: Dollar values in 2020 dollars. All columns include only private sector workers who are non-exempt from the federal minimum wage. Column (1) includes all private sector workers with a plausible wage value (<$300/hr, > $1/hr,) who are non-exempt from the federal minimum wage under the FLSA. Column (2) includes all workers in column (1) who have imputed wage values. Column (3) includes all workers in column (2) who report earning no overtime, tips, or commissions (OTC). Column (4) includes all workers in column (3) who report a wage lower than their corresponding minimum wage. The house price index variable uses data from the quarterly all transactions state index published by the Federal Housing Finance Agency (FHFA). The income per capita variable uses average quarterly data by state from the Bureau of Economic Analysis (BEA).

Column (4) of Table 1 reports a CPS sample of over six thousand workers in roughly six years of data reporting a minimum wage violation. These workers are younger, more likely to be Hispanic, and more likely to have not completed high school. They also, on average, work eight fewer hours per week than workers in column (3). Tables 2 and 3 list the top ten industries and occupations that report minimum wage violations from this sample of CPS workers, including the median underpayment among those reporting violations, and the median hourly wage across all workers in the industry. To focus on larger industries and occupations and to avoid reporting

high rates of violations across very few workers, Table 2 limits the analysis to industries with more than 1,000 observations in the CPS-ORG over this period while Table 3 only includes occupations with 100 or more observations.

Table 2: Top 10 Industries by Minimum Wage Violation Rate

Industry	Minimum wage violation rate (%)	Median hourly underpayment among those reporting violations ($2020)	Median hourly wage ($2020)	Occupation within this industry with the most violations
1. Restaurants and other food services	11.7	1.00	11.13	Waiters and waitresses
2. Crop production	11.2	0.75	13.46	Miscellaneous agricultural workers
3. Other amusement, gambling, and recreation industries	7.1	0.75	12.87	Entertainment attendants and related workers
4. Gas Stations	7.1	0.50	11.22	Cashiers
5. Colleges and universities, including junior colleges	6.7	0.60	14.85	Office Clerks
6. Clothing stores	6.5	0.50	12.19	Retail Salespersons
7. Sporting goods, camera, and hobby and toy stores	5.4	0.50	12.24	Retail Salespersons
8. Services to buildings and dwellings	5.4	0.75	13.00	Janitors and building cleaners
9. Grocery Stores	5.4	0.50	11.60	Cashiers
10. Civic, social, and advocacy organizations	4.6	0.65	15.30	Janitors and building cleaners

Source: Data from 2017-2022 CPS-ORG, using earnings weights.
Notes: This table lists industries in the CPS-ORG, sorted by minimum wage violation rate based on reported wages across all U.S. workers. The sample includes only hourly paid workers in the private sector who do not report an imputed wage, and who do not report earning overtime, tips, or commissions. Only industries with more than 1,000 observations in this sample and time period are included.

Table 3: Top 10 Occupations by Minimum Wage Violation Rate

Occupation	Minimum wage violation rate (%)	Median underpayment among those reporting violations ($2020)	Median hourly wage ($2020)	Industry with the most violations for this occupation
1. Bartenders	28.6	2.50	10.60	Restaurants and other food services
2. Waiters and waitresses	28.0	2.60	10.20	Restaurants and other food services
3. Counter attendants, cafeteria, concession, and coffee shop	14.5	0.44	9.54	Restaurants and other food services
4. Cafeteria attendants, bartender helpers, and other food service workers	14.3	1.00	10.60	Restaurants and other food services
5. Dishwashers	14.3	0.56	10.60	Restaurants and other food services
6. Other entertainment attendants and related workers	13.3	0.80	12.00	Amusement, gambling, and recreation industries
7. Hairdressers, hairstylists, and cosmetologists	12.2	0.50	11.88	Beauty salons
8. Miscellaneous agricultural workers	12.1	0.75	12.87	Crop production
9. Host and hostesses, restaurant, lounge, and coffee shop	11.7	0.50	10.40	Restaurants and other food services
10. Fast food and counter workers	11.1	0.70	11.50	Restaurants and other food services

Source: Data from 2017-2022 CPS-ORG, using earnings weights.
Notes: This table lists occupations in the CPS-ORG, sorted by minimum wage violation rate across all U.S. workers. The sample includes only hourly paid workers in the private sector who do not report an imputed wage, and who do not report earning overtime, tips, or commissions. Only occupations with more than 100 observations in this sample and time period are included.

Tables 2 and 3 highlight the large percentage of food service workers in this sample reporting a minimum wage violation, including over 25% of bartenders, waiters, and waitresses. These occupations usually earn tips, and the relatively high median underpayment amounts in Tables 2 and 3 suggest that these workers are likely reporting a pre-tipped wage. If these workers do earn tips, they should have been excluded from my sample based on that fact. For that reason,

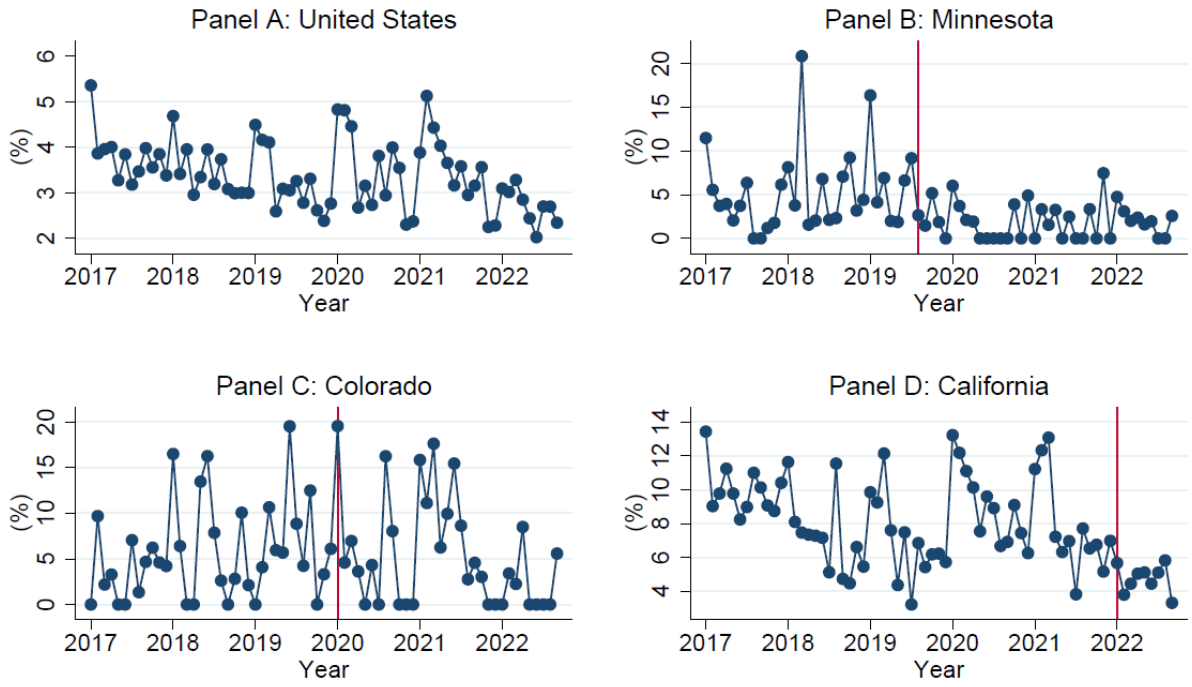
I exclude all bartenders, waiters, and waitresses from my sample. Other food service workers may deserve to be excluded based on tips, too. Still, these CPS-ORG respondents reported their hourly wages and whether they received overtime, tips, or commissions, and these responses were not imputed by the Bureau of Labor Statistics. Because other studies report high rates of minimum wage violations for restaurant and food services industries (Bernhardt et al. 2009; Cooper and Kroeger 2017), my analysis below considers this sample with and without other food services workers.

The gas station, clothing stores, grocery stores, and "hobby" stores industries in Table 2 include many different occupations, but cashiers and retail salespersons are the CPS occupations that represent 75% of the violations in these industries. Agricultural workers also report high rates of minimum wage violations. These workers are exempt from the FLSA's overtime requirements, but not federal minimum wage requirements (U.S. Department of Labor 2020), potentially creating confusion for minimum wage compliance.

With the sample defined above, Figure 1 plots the rate of minimum wage violations for workers in this sample in the United States, Minnesota, Colorado, and California. From 2017 through 2022, the percentage of workers reporting wages below their effective minimum wage slightly declines nationwide, as seen in Panel A. This may be due in part to stagnant effective minimum wages for most workers, coupled with post-pandemic rising actual wage rates for low-wage workers. Panel A also reflects a nationwide trend of spikes in minimum wage violation rates at the beginning of a calendar year. Because minimum wage rises typically occur in January, these first-quarter spikes in minimum wage violation rates could reflect one of two things: employers taking a few months to comply with new minimum wages, or workers

misreporting their new and higher hourly wage. These first-quarter spikes are more dramatic in panels B, C, and D, though some spikes occur outside the first quarter too.

Figure 1: Minimum Wage Violation Rates, by Jurisdiction



Source: CPS-ORG. Sample includes hourly workers with non-imputed wages who do not earn overtime, tips, or commissions. Vertical lines denote month of enactment of each state's wage theft criminalization law.

Panels B, C, and D of Figure 1 show minimum wage violation rates in the states analyzed in this article, with each panel including a red vertical line to denote when the state enacted its wage theft criminalization law. Minnesota and California both show decreased rates following their laws' enactment, whereas rates in Colorado are highly variable and show no clear sign of decline following the law. Before the law's enactment in California, monthly rates of minimum wage violations are already declining. Further analysis investigates this pre-trend. These panels provide helpful visualizations of minimum wage violation rates over time, but to better estimate

the causal effects of these wage theft criminalization laws, the next section describes this paper's empirical methodologies.

Using the CPS-ORG sample described above, I estimate the following difference-in-differences regression model:

$$Violation_{i,s,t} = \delta_{DD} * WageTheftCrim_s * Post_t + \Sigma_s \beta_s * State_s + \Sigma_t \Phi_t * Time_t + \boldsymbol{\rho} * \boldsymbol{X_{i,s,t}} + \varepsilon_{i,s,t} \quad (1)$$

The dependent variable, $Violation_{i,s,t}$, is a binary variable indicating whether individual *i* in state *s* and month *t* reported an hourly wage less than their state's corresponding minimum wage at the time. δ_{DD} is the parameter of interest and is the difference-in-differences coefficient for wage theft laws with criminal sanctions. This model includes year, month, month-year, and state fixed effects. The vector, $\boldsymbol{X_{i,s,t}}$, includes control variables, which in the baseline model includes the state's minimum wage in that month, the respondent's real hourly wage, and indicator variables for their age, female, Black, Hispanic, education levels, and union status. Similar to Clemens and Strain (2022), this model also controls for state-level macroeconomic variables, including the median house price index and the state income per capita.

To analyze pre-existing trends and the evolution of the effects of these laws in subsequent years, I also estimate this model using an event study estimator, as shown in Model (2), following Clemens and Strain (2022).

$$Violation_{i,s,t} = \sum_{p(t)\neq 0} \delta_{DD} * WageTheftCrim_s * EventYear_{p(t)} + \Sigma_s \beta_s * State_s + \Sigma_t \Phi_t * Time_t + \boldsymbol{\rho} * \boldsymbol{X_{i,s,t}} + \varepsilon_{i,s,t} \quad (2)$$

This event study differs from the first model based only on the interactions of the wage theft criminalization laws with the "event year" variables. Each event year is an indicator variable taking a value of one when the individual's survey month is within the given year. Event year zero is the twelve months preceding the enactment of the law. Event year minus one is the twelve

months before event year zero, while event year plus one is the twelve months after the enactment of the law.

I omit the interaction of the law's enactment with event year zero. These coefficients can then be interpreted as changes in minimum wage violations in the given event year, relative to event year zero. Coefficients on event years prior to event year zero can reveal whether the outcome variable displayed significant pre-existing trends, while coefficients on event years after event year zero reflect how the effect of the law changes in each year following its enactment.

Finally, I investigate how hourly wages change in response to these laws. Model (3) uses hourly wages as the dependent variable, removing that variable from the vector of control variables in the first model.

$$Wage_{i,s,t} = \delta_{DD} * WageTheftCrim_s * Post_t + \Sigma_s \beta_s * State_s + \Sigma_t \Phi_t * Time_t + \boldsymbol{\rho} * \boldsymbol{X_{i,s,t}} + \varepsilon_{i,s,t} \qquad (3)$$

I run each model separately for the three states to account for possible differential effects of these wage theft criminalization statutes enacted in different states and policy environments. I consider and use different comparator groups, using the same sample of workers in neighboring regional states in my baseline models. To measure effects of these statutes via a difference-in-differences model, these comparators groups are untreated—comparison states do not enact wage theft criminalization laws—and they are similar to the treated state across several key wage and demographic measures. Comparison states should also reflect parallel trends of minimum wage violation rates pre-enactment of the wage theft criminalization statute. The next section discusses the comparison control states and provides summary statistics comparing each treated state to its control states. The parallel trends assumption and tests across key measures are analyzed in following subsections.

V. RESULTS

This section provides measures of minimum wage violations in my samples, comparing the three states—Minnesota, Colorado, and California—that enacted wage theft criminalization laws against neighboring states. Then, each subsection below reports the regression results of the above empirical models and analyzes the effect of the wage theft criminalization law on minimum wage violations and wages.

A. Minnesota

Enacted in August 2019, Minnesota's wage theft criminalization law was the first in the nation to equate penalties for wage theft with the penalties already on the books for other forms of theft. Minimum wage violations visually appear to decline in the raw data following the law's enactment, represented by the red vertical line in Panel B of Figure 1. Still, to causally analyze the effect of the law and to ensure the observed declines in minimum wage violations would not have happened in the absence of this law, it is necessary to compare minimum wage violations in Minnesota and other states. Table 4 compares Minnesota to other states in the region, namely Wisconsin, Iowa, Illinois, Michigan, and North and South Dakota over January 2017 through September 2022. Later sections of this paper consider robustness checks on using this control group, a control group of the entire non-treated United States, and a synthetic control of Minnesota. Importantly, iteratively excluding or including these states does not change my results throughout my analysis. Minnesota experiences a drop of 3.3 percentage points in its

minimum wage violation rate after the law's enactment, compared to the slight decline of 0.1 percentage points in these comparison control states.

Across other characteristics, Minnesota appears similar to these regional comparators. As seen in Table 4, workers in Minnesota have a real hourly wage just under two dollars per hour higher, and Minnesota's average minimum wage over this period is higher by $1.24. The demographics of these groups are similar. To ensure that differences between Minnesota and these control states selected by geographic proximity are not driving any results, a synthetic control analysis is presented in a following subsection.

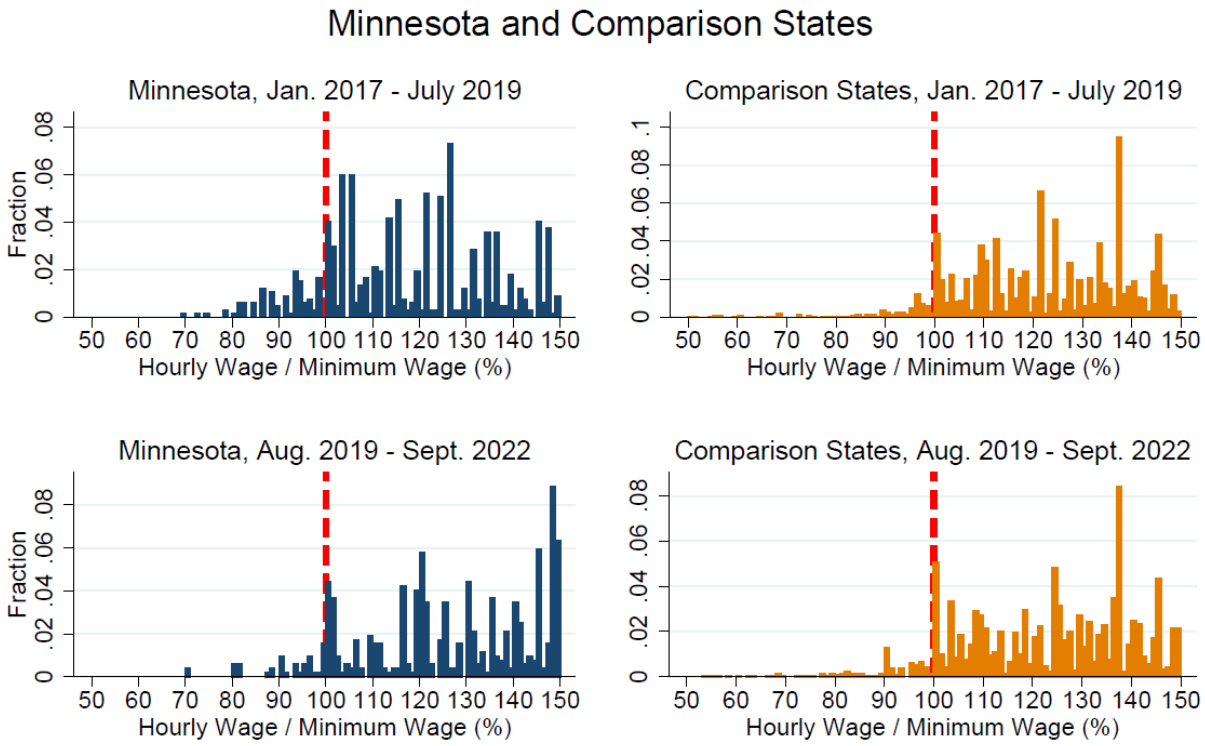
Table 4: Summary Statistics for Minnesota and Regional Control States

	(1) MN	(2) Regional Control States: WI, IA, IL, MI, ND, SD
Wage Theft Criminalization Law Enactment Date	*Aug. 2019*	*None*
Min. wage violation rate (%)		
Pre-Enactment Period	5.3	2.4
Post-Enactment Period	2.0	2.3
Jan. 2017 – Sept. 2022	3.5	2.3
Hourly wage ($)	19.91	17.94
Minimum wage, average	9.88	8.64
Usual hours worked per week	32.9	33.2
Age	38.9	38.3
Female (%)	52.8	53.4
White (%)	81.2	84.0
Black (%)	9.5	9.9
Hispanic (%)	9.7	14.0
Union (%)	11.1	9.2
No High School Diploma	14.8	12.5
Sample size	3,361	24,026

Source: CPS-ORG using earning weights, spanning 2017-2022 unless otherwise noted.
Notes: Dollar values in 2020 dollars. Sample includes hourly, non-exempt, private sector workers who have a non-imputed wage and do not receive overtime, tips, or commission.

Figure 2 plots the wage distribution for Minnesota and these comparison states both pre- and post-enactment. The distribution shows hourly wages as a percent of the effective minimum wage over these years, and focuses on the low-end of the distribution to better demonstrate the reported hourly wages beneath the minimum wage. The red dashed line represents an hourly wage equal to the effective minimum wage in the state. Every observation to the left of the red line, then, is a minimum wage violation in my dataset. Comparing Minnesota's two panels, the number of observations to the left of the red line meaningfully decreases (confirmed by the drop in minimum wage violations in Minnesota in Table 4), and we see a rightward shift in the post-treatment distribution. For the comparison states, while points of the distribution shift slightly, there is no meaningful change in the number of hourly wages below the minimum wage.

Figure 2: Hourly Wages as a Percent of Minimum Wages, Minnesota



Source: CPS-ORG. Sample includes hourly workers with non-imputed wages who do not earn overtime, tips, or commissions.
Sample limited to those with wages between 50% and 150% of the prevailing minimum wage.
Comparison States to Minnesota are Wisconsin, Michigan, Illinois, Iowa, North Dakota, and South Dakota.

Table 5: The Effect of Minnesota's Wage Theft Criminalization Law on Minimum Wage Violations

Specifications:	(1) Baseline	(2) Minimum wage violations of $0.25 or more	(3) Drop food service occupations and industry	(4) Comparison group of all non-treated U.S. States	(5) Pre-COVID data only
Minnesota	0.026***	0.023***	0.014*	0.051***	-0.007
	(0.009)	(0.008)	(0.008)	(0.012)	(0.022)
Post Aug. 2019	0.015	0.019	0.006	0.008	-0.028*
	(0.021)	(0.020)	(0.017)	(0.009)	(0.016)
Minnesota X Post Aug. 2019	-0.028***	-0.024***	-0.013**	-0.028***	-0.025**
	(0.007)	(0.007)	(0.006)	(0.007)	(0.011)
Real Hourly Wage ($)	-0.002***	-0.002***	-0.002***	-0.003***	-0.002***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Minimum Wage ($)	0.008***	0.008***	0.005**	0.009***	0.013
	(0.002)	(0.002)	(0.002)	(0.001)	(0.013)
Observations	27,210	27,210	24,027	178,122	16,346
R-squared	0.06	0.05	0.04	0.06	0.07

Notes: CPS-ORG sample from 2017-2022 includes hourly, non-exempt, private sector workers with a non-imputed wage and who do not receiv overtime, tips, or commission. All regressions include demographic and macroeconomic controls and month, year, month-year, and state fixed effects. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 5 presents Minnesota's regression results from the empirical model in Section III. Consistent with Clemens and Strain (2022), higher minimum wage levels are regularly associated with more minimum wage violations, and higher hourly wages are associated with fewer violations. In the baseline model, Minnesota's wage theft criminalization law is associated with a 2.8 percentage point decline in minimum wage violations in the state. Compared to Minnesota's pre-period rate of minimum wage violations, 5.3%, this represents a decline of over 50%. However, as seen in Table 4 and in the first row of results in Table 5, Minnesota had a higher violation rate than the control states to begin with. The effect of the law is consistent with bringing Minnesota's violation rate down to roughly match violation rates of the control states.

The other columns in Table 5 provide several robustness checks on these baseline findings. The stability of the treatment effect provide support for the baseline estimates. As an

additional check against measurement error, and to ignore relatively minor reports of minimum wage violations, column (2) only counts minimum wage violations if the CPS-ORG respondent reported a wage more than $0.25 below their appropriate minimum wage. The treatment effect of the law is significant at the 1% level for these larger minimum wage violations too. Since Tables 2 and 3 revealed a high percentage of food service workers in the CPS-ORG who may be misreporting their tipped status, column (3) reports regression results excluding such workers.[19]

To ensure that the effect of this law is not due to the regional states used to compare to Minnesota, column (4) includes all non-treated states (that is, not California or Colorado) as comparators in the regression. The treatment effect here is also a decline of 2.8 percentage points, reflecting that the effect of the law is stable when comparing Minnesota to the rest of the U.S., not just its nearby states.

Finally, because COVID abruptly and significantly changed work—especially low-wage work—column (5) considers only data prior to March 2020. This limits the post-period to consider the effect of Minnesota's law to only seven months. Column (3) reflects a 2.5 percentage point decline in violations prior to COVID. Even with less data, this finding is still significant at the 5% level.[20]

B. Colorado

Panel C of Figure 1 plots minimum wage violations in Colorado. Unlike in Minnesota, there is no clear visual decline in minimum wage violations after the wage theft criminalization law went into effect in January 2020. Column (1) of Table 6, below, confirms there is no change

[19] The CPS industry code 8680, for the Restaurants and Food Service industry, is dropped, as well as CPS occupation codes ranging from 4000 to 4199, which includes bartenders, cooks, waiters and waitresses, dishwashers, hosts and hostesses, cafeteria attendants, fast food workers, and food preparation workers among others.
[20] Likewise, including an indicator variable for post-COVID did not impact any of the regressions in Table 5.

in minimum wage violation rates in Colorado following the law when considering all Colorado respondents.

Table 6: Summary Statistics for Colorado and Regional Control States, All Respondents and Non-Central City Respondents

	(1) CO	(2) CO, non-central city respondents	(3) Regional comparators: UT, NM, AZ, KS, WY, NE	(4) Regional comparators, non-central city respondents
Wage Theft Criminalization Law Enactment Date	*Jan. 2020*		*None*	
Min. wage violation rate (%):				
Pre-Enactment Period	5.4	6.0	2.8	2.3
Post-Enactment Period	5.4	3.9	3.1	2.8
Jan. 2017 – Sept. 2022	5.4	5.0	3.0	2.5
Hourly wage ($)	19.13	19.10	17.33	17.35
Minimum wage, average	11.20	11.18	9.25	8.86
Usual hours worked per week	34.1	33.8	33.9	33.8
Age	37.5	37.9	36.8	36.9
Female (%)	49.6	51.1	51.2	51.9
White (%)	85.3	89.0	86.1	88.7
Black (%)	7.5	3.9	5.7	3.6
Hispanic (%)	34.1	36.2	32.2	28.5
Union (%)	5.4	4.6	4.1	4.2
No High School Diploma	16.1	17.4	15.6	15.8
Sample size	2,325	1,538	20,909	15,409

Source: CPS-ORG using earning weights, spanning 2017-2022 unless otherwise noted.
Notes: Dollar values in 2020 dollars. Sample includes hourly, non-exempt, private sector workers who have a non-imputed wage and do not receive overtime, tips, or commission. Columns (2) and (4) limit the sample further to exclude workers living in a central city.

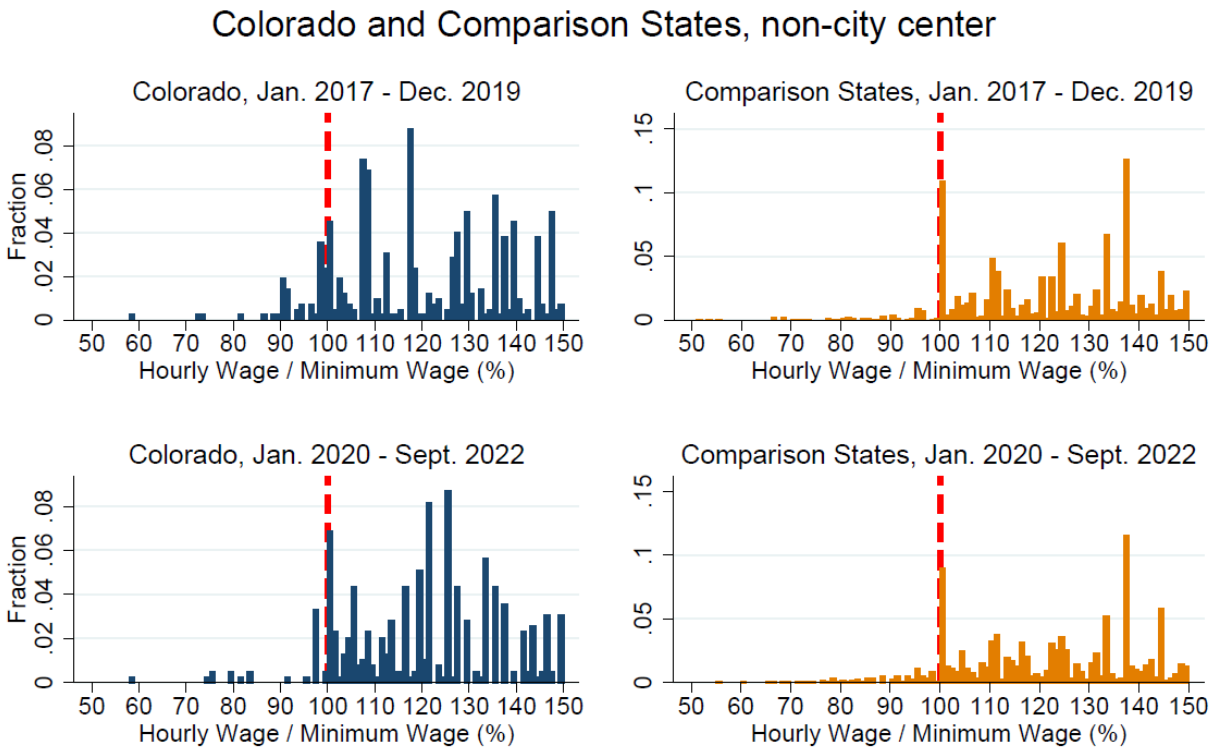
Based on the differences in Denver's wage theft laws, their enforcement, and local minimum wages compared to the rest of the state, the analysis of Colorado's law is likely clearer without these concurrent local changes. Table 6 also reports summary statistics of CPS-ORG respondents who do not live in a central city in Colorado and in comparator control states. This

likely drops residents of smaller city centers in Colorado too, though this should primarily exclude Denver based on its relative population within Colorado. In column (2), there is a drop in the violation rate for non-central city Colorado respondents of 2.1 percentage points following the enactment of the law.

Regionally, the minimum wage violation rate slightly increased by 0.3 percentage points after January 2020 for the control states of Utah, New Mexico, Arizona, Kansas, Wyoming, and Nebraska. For non-central city respondents in these states, the increase was similar, at 0.5 percentage points. These neighboring states provide a comparison point for Colorado, not just geographically, but also demographically. Colorado has similar rates of Hispanic and Black workers, as well as workers without a college degree. However, compared to this group of states, Colorado does have a higher minimum wage of nearly two dollars over this period and its workers have higher real hourly wages.

Figure 3 plots the wage distributions for non-city center respondents in Colorado and in these comparison states. Following the law, there is a greater percentage of Colorado respondents being paid at or just above the minimum wage, as demonstrated by the increase in the bar just to the right of the dashed red line. The post-period also appears to show fewer hourly wages just to the left of the line, corresponding with Table 6. There are no meaningful differences in the distribution for Colorado's comparison states over this period.

Figure 3: Hourly Wages as a Percent of Minimum Wages, Colorado



Source: CPS-ORG. Sample includes hourly workers with non-imputed wages who do not earn overtime, tips, or commissions.
Sample limited to those with wages between 50% and 150% of the prevailing minimum wage.
Comparison States to Colorado are Utah, New Mexico, Arizona, Kansas, Wyoming, and Nebraska.

Table 7 reports regression results on the effects of Colorado's wage theft criminalization on minimum wage violations. When considering all respondents, column (1) shows no effect of the law. As described above, there are a few reasons that local differences in Denver compared to the rest of the state may impact analysis of the state law. These differences include other wage theft laws enacted during this period and higher local minimum wages. In an effort to focus the analysis on violations in Colorado, but outside of Denver, column (2) drops respondents who live in a city center. The coefficient on the treatment variable in column (2) is negative and statistically significant with a decline of 3.6 percentage points. Compared to the 6% pre-enactment period violation rate, this is a decline of 60%.

Table 7: Effects of Colorado's Wage Theft Criminalization Law on Minimum Wage Violations

	(1) All Respondents	(2) Non-Central City Respondents	(3) Non-Central City, Violations of $0.25 or more	(4) Non-Central City, Dropping Food Service Industry and Occupations	(5) Non-Central City, Comparison Group of Non-Treated States
Colorado	0.097***	0.096***	0.105***	0.067*	0.046***
	(0.032)	(0.036)	(0.033)	(0.035)	(0.015)
Post Jan. 2020	0.070*	0.046	0.081**	0.036	-0.008
	(0.037)	(0.044)	(0.041)	(0.039)	(0.011)
Colorado X Post Jan. 2020	-0.006	-0.036**	0.006	-0.040***	-0.031***
	(0.014)	(0.016)	(0.015)	(0.015)	(0.012)
Real Hourly Wage ($)	-0.004***	-0.003***	-0.003***	-0.002***	-0.002***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Minimum Wage ($)	0.016***	0.019***	0.015***	0.016***	0.011***
	(0.002)	(0.003)	(0.003)	(0.003)	(0.001)
Observations	23,128	16,850	16,850	14,679	139,306
R-squared	0.07	0.07	0.06	0.05	0.06

Notes: CPS-ORG sample from 2017-2022 includes hourly, non-exempt, private sector workers with a non-imputed wage and who do not receive overtime, tips, or commission. All regressions include demographic and macroeconomic controls and month, year, month-year, and state fixed effects Columns (2) through (5) include only respondents who do not live in a central city. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Continuing to exclude non-city center respondents, this effect is relatively stable between 3.1 and 4.0 percentage points in column (4) when excluding food service workers, and in column (5) when using a broader comparison group of states. When focusing on violations of $0.25 or more in column (3), the treatment coefficient is insignificant.[21]

Because this law took effect just two months before COVID first impacted the U.S., measuring the effectiveness of this law pre-COVID is difficult. While these regressions include fixed effects to control for individual month, year, month-year, and state shocks, COVID structurally changed low-wage work. Minnesota's pre-COVID analysis provides an indication that their law had similar effects pre-COVID and when including data after March 2020. These

[21] This result is driven by reported minimum wage violations of exactly $0.32 in Colorado in early 2021, when the minimum wage rose from $12 in 2020 to $12.32 on January 1, 2021.

Colorado regressions do not include a pre-COVID column because there were only two such months after the law's enactment, not providing enough data to meaningfully analyze any pre-COVID effect.

C. California

Lastly, California's newest wage theft criminalization law was signed in September 2021 to take effect January 1st, 2022. Panel D of Figure 1 highlights that in the relatively few months of data following enactment, minimum wage violations have declined. This panel also shows that minimum wage violations in California were already downward trending prior to the law's enactment. This pre-trend in the outcome variable is analyzed further in the following subsection.

Comparing California to regional states of Washington, Oregon, Arizona, and Nevada, Table 8 shows minimum wage violations drop post-enactment in California, but there is no change in these regional states. These states stack up reasonably well to California in most demographic and employment measures. California has a larger Hispanic population, more workers without a high school degree, and a slightly more unionized workforce. Workers in these Western states have a comparable minimum wage and real hourly wages. While these wage values are slightly lower than those for California, these measures are far higher than those for states in the comparison groups for Minnesota and Colorado.

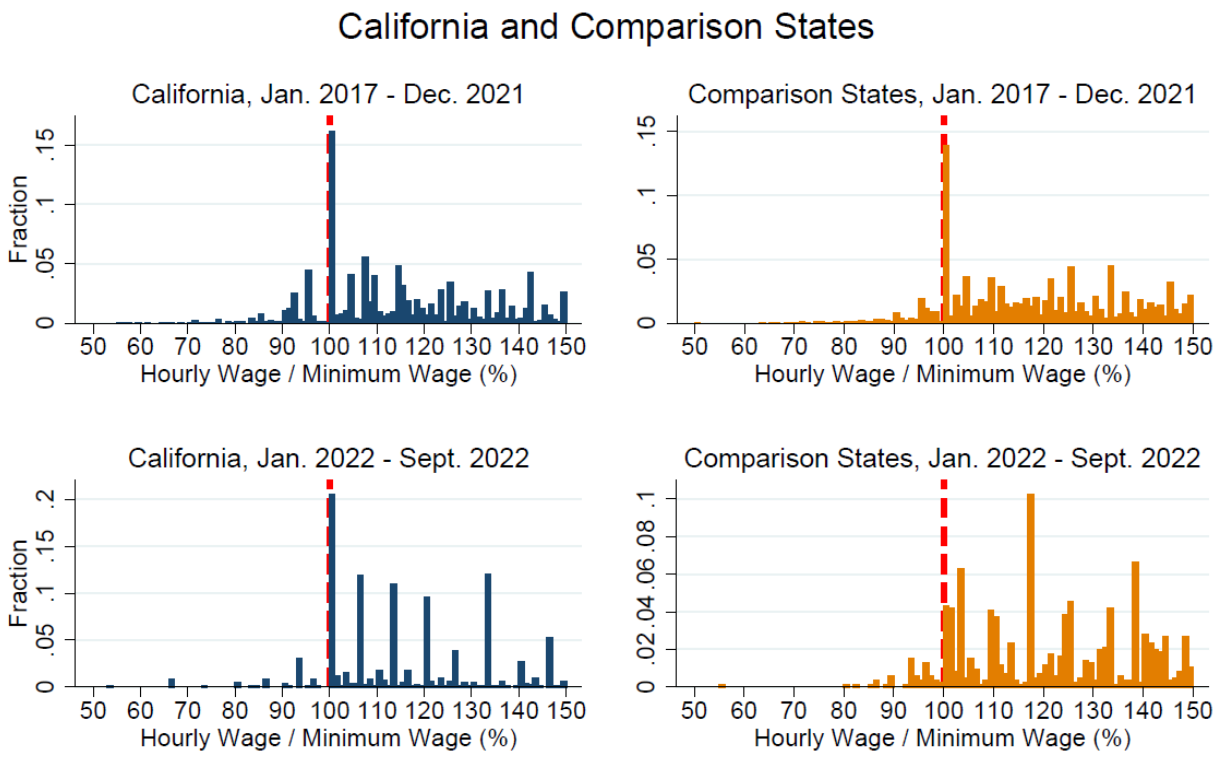
Table 8: Summary Statistics for California and Regional Control States

	(1) CA	(2) Regional Comparators: OR, WA, AZ, NV
Wage Theft Criminalization Law Enactment Date	*Jan. 2022*	*None*
Min. wage violation rate (%):		
Pre-Enactment Period	8.3	5.1
Post-Enactment Period	4.8	3.8
Jan. 2017 – Sept. 2022	7.8	5.0
Hourly wage ($)	20.30	19.46
Minimum wage, average	12.42	11.42
Usual hours worked per week	34.7	34.4
Age	38.1	38.1
Female (%)	47.9	50.3
White (%)	75.3	81.1
Black (%)	6.5	6.8
Hispanic (%)	55.0	31.1
Union (%)	12.3	9.7
No High School Diploma	19.3	14.6
Sample size	17,013	14,857

Source: CPS-ORG using earning weights, spanning 2017-2022 unless otherwise noted.
Notes: Dollar values in 2020 dollars. Sample includes hourly, non-exempt, private sector workers who have a non-imputed wage and do not receive overtime, tips, or commission.

Figure 4 plots similar wage distributions relative to the minimum wage for California and its comparison states pre- and post-treatment. For California's distributions, there is a decline in observations to the left of the minimum wage in the post-period, confirming results in Table 8. Because California's post-period only demonstrates the year 2022, when the minimum wage was $15 per hour, spikes in the post-period graph occur due to bunching of wages at round dollar values, including $16, $17, and $18 per hour. For the comparison states, there appear to be fewer hourly wages below 80% of the effective minimum wage, but still a small mass of observations between 90% and 100%.

Figure 4: Hourly Wages as a Percent of Minimum Wages, California



Source: CPS-ORG. Sample includes hourly workers with non-imputed wages who do not earn overtime, tips, or commissions.
Sample limited to those with wages between 50% and 150% of the prevailing minimum wage.
Comparison States to California are Washington, Oregon, Nevada, and Arizona.

Table 9: California's Wage Theft Criminalization Law on Minimum Wage Violations

	(1) Baseline	(2) Minimum wage violations of $0.25 or more	(3) Drop food service occupations and industry	(4) Comparison group of all non-treated U.S. States	(5) 2021 and 2022 data only
California	0.138***	0.132***	0.111***	0.114***	0.709***
	(0.033)	(0.033)	(0.030)	(0.013)	(0.242)
Post Jan. 2022	-0.010	-0.018	-0.004	0.013	0.002
	(0.036)	(0.035)	(0.032)	(0.009)	(0.069)
California X Post Jan. 2022	-0.029***	-0.040***	-0.019**	-0.041***	-0.021
	(0.009)	(0.009)	(0.008)	(0.006)	(0.014)
Real Hourly Wage ($)	-0.004***	-0.004***	-0.003***	-0.003***	-0.004***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Minimum Wage ($)	0.024***	0.027***	0.016***	0.010***	0.027*
	(0.005)	(0.005)	(0.005)	(0.001)	(0.015)
Observations	31,815	31,815	27,175	191,774	8,597
R-squared	0.07	0.07	0.05	0.06	0.08

Notes: CPS-ORG sample from 2017-2022 includes hourly, non-exempt, private sector workers with a non-imputed wage and who do not receive overtime, tips, or commission. All regressions include demographic and macroeconomic controls and month, year, month-year, and state fixed effects Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 9 provides regression results for California's wage theft criminalization law, showing that this law was associated with a statistically significant decline in minimum wage violations. The baseline model reports a drop in minimum wage violations of 2.9 percentage points due to the law. Compared to California's pre-enactment minimum wage violation rate of 8.3%, that estimate represents a 35% decline. As seen in Table 8, and in the coefficient on the California indicator variable, California has a much higher rate of minimum wage violations than other states. While a 35% decline is a large effect, even after this law California still exhibits higher violation rates than other states in the region.

Other columns in Table 9 show even larger effects of the law. Focusing only on minimum wage violations greater than $0.25 in column (2) or using all non-treated states as a comparison in column (4) shows a decline of about four percentage points, or nearly 50% of the

pre-enactment level of violations. Excluding food service workers drops the magnitude of the treatment effect, but the effect remains statistically significant at the 1% level.

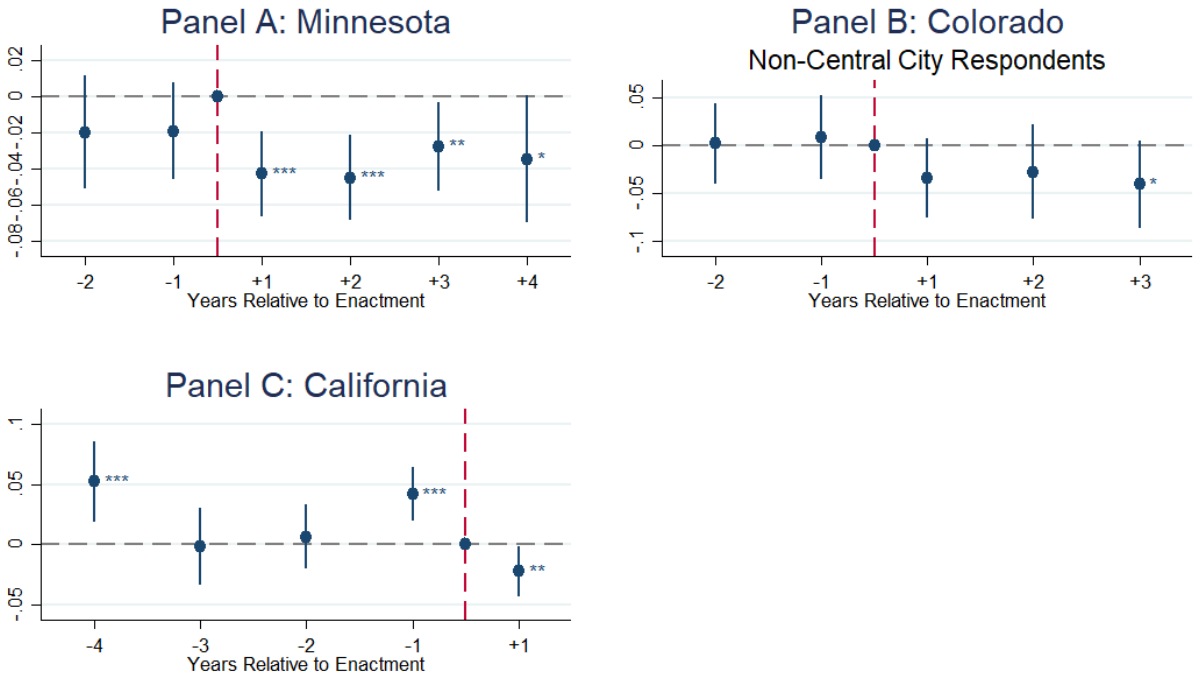
Considering that most of the pre-enactment data is pre-COVID, column (5) restricts this regression to just use data from 2021 and 2022. With less data and precision, the coefficient on the treatment indicator, along with most other coefficients, loses significance in this regression, although the coefficient on the treatment indicator is still negative and even larger in magnitude.

D. Event Study

In addition to the difference-in-differences regression estimates, an event study of the effects of each law is useful for two reasons. First, an event study can reveal pre-existing trends in a state before the law takes effect. Such a violation of the parallel trends assumption may hinder interpreting the effects of a law if minimum wage violations were already declining before the law went into effect. Second, by plotting the coefficients for the effect of the law in each year, an event study can show how the effect of the law evolves over time. This contrasts with the above regressions which only report coefficients for a single post-period after the law.

Figure 5 shows event study estimates for each state, with each coefficient representing the state's change in the minimum wage violation rate, compared to regional control states, relative to the difference in the year prior to the law's enactment. Each coefficient's estimate includes a range for the 95-percent confidence interval. The event study shows that prior to the law in Minnesota, the differences in minimum wage violations were not changing significantly between Minnesota and its regional comparators. This suggests there were no pre-trends in the outcome variable prior to the law. However, in the first twelve months following the law's enactment, Minnesota experienced a drop in minimum wage violations relative to comparator

Figure 5: Event Study Estimates by State



Source: CPS-ORG. This figure displays event studies of each state's wage theft criminalization law on minimum wage violation rates. The coefficients are relative to event year zero which represents the 12 months before the law's enactment. The sample for each study is private-sector hourly workers with non-imputed wages who do not earn overtime, tips, or commissions. Panel B also restricts the sample to non-central city respondents, described in detail in the text. 95% confidence intervals shown. *** p<0.01, ** p<0.05, * p<0.1.

states. This effect was large relative to Minnesota's pre-period minimum wage violations rate of 5.3% and statistically significant at the 1% level. This large decline persisted into the second year following enactment, and slightly lessened both in magnitude and statistical significance in the third year, as well as the first couple months of the fourth year.

Prior estimates for Colorado only showed an effect of the state's wage theft law when considering respondents not in a city center. As such, Panel B of Figure 5 includes this sample restriction too. Similar to Panel A, the effect of the law in Panel B shows no concerning pre-trends before the Colorado law's enactment. The yearly estimates for violations for respondents outside city centers following the law's enactment are roughly similar in magnitude. However,

only the final estimate is statistically significant at the 10% level, suggesting the law had its strongest effect in 2022.

The event study results for California show a clear pre-period trend before the law was enacted. Additionally, the event study is a reminder that since this law went into effect at the start of 2022, the longer-term effects of this law are still developing. Minimum wage violation rates in California were higher compared to control states in the years prior to enactment, relative to the difference one year prior to the law. This suggests that California and its comparator states were not on parallel trends for the outcome variable prior to the law. While California's post-enactment decline in minimum wage violations in 2022 is large and statistically significant, this decline may be due in part to the pre-period decline.

E. Wages

Beyond reducing the prevalence of subminimum wage payments, these laws may also increase wages for workers. The stronger deterrents may induce more compliance with minimum wages, raising wages for some workers at risk of minimum wage violations. There are several groups of workers worth considering. First, workers in the top ten industries for minimum wage violations should see corresponding wage gains from fewer violations. Second, economic literature regularly analyzes wages of young workers, including teenagers, in studies on minimum wages (Card & Krueger 1994; Cengiz et al 2022). Young workers are often paid at or around the minimum wage, and my data also find these workers have above-average violation rates. Third, Black workers often face many discriminatory labor practices (Darity Jr. & Mason 1998), and this group also sees above-average rates of minimum wage violations. If these laws are associated with wage gains for workers, these groups should most reflect those gains.

For each state, Table 10 reports regression results for workers in a top-ten industry for minimum wage violations, for workers aged 16 to 25, and for Black workers. As a check, Table 10 also reports coefficients of the minimum wage on the hourly wages of these workers. Across the board, and consistent Clemens and Strain (2022), Table 10 shows that minimum wage raises reflect positive, statistically significant increases around $0.15 to $0.25 for the hourly wages of these workers.

Table 10 shows that the Minnesota law was associated with statistically significant real hourly wage gains for each type of worker analyzed. With real hourly wage gains between $0.48 and $0.80 per hour, these are economically meaningful wage gains across these groups of workers. The results for Colorado and California are not as robust, with only wage gains for Colorado non-city center workers in a top-ten violation industry. Even with this positive effect,

Table 10: Wage Theft Criminalization Laws on Real Hourly Wages of Workers by Demographics

	Real Hourly Wages in Minnesota			Colorado, non-city center			California		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Top 10 Violation Industry	Age 16-25	Black	Top 10 Violation Industry	Age 16-25	Black	Top 10 Violation Industry	Age 16-25	Black
Post-Enactment Effect	0.48***	0.63***	0.80***	0.75***	0.08	-0.74*	0.17	-0.13	-1.30
	(0.11)	(0.08)	(0.22)	(0.09)	(0.11)	(0.39)	(0.28)	(0.31)	(0.91)
Minimum Wage ($)	0.17**	0.13**	0.23*	0.15*	0.16**	0.24	0.17***	0.12**	0.20*
	(0.07)	(0.06)	(0.11)	(0.08)	(0.06)	(0.16)	(0.06)	(0.05)	(0.12)
Observations	33,228	42,604	20,818	25,325	33,156	12,371	36,346	45,499	21,465
R-squared	0.16	0.20	0.18	0.15	0.19	0.18	0.18	0.21	0.19

Notes: This regression reports the effects of wage theft criminalization laws on the real hourly wages of workers in each listed state. Columns (1), (4), and (7) limit the analysis to workers in the top ten industries by minimum wage violations as reported in Table 2. Columns (2), (5), and (8) limit the analysis to young workers aged 16 to 25. Columns (3), (6), and (9) limit the analysis to Black workers. CPS-ORG sample from 2017-2022 includes hourly, non-exempt, private sector workers with a non-imputed wage and who do not receive overtime, tips, or commission. All regressions include education indicators, macroeconomic controls and month, year, month-year, and state fixed effects. Robust standard errors clustered at the state level in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

column (6) displays a negative effect for Black workers in Colorado, statistically significant at the 10% level. These estimates are similar when including only pre-COVID data. Overall, Table 10 lends support to the previous analysis that Minnesota's law had the strongest, most consistent effect. Based on results in prior tables, minimum wage violations drop most clearly and consistently in Minnesota. Correspondingly, hourly wages of low-wage workers rose in Minnesota, though this effect is not seen in California or consistently in Colorado.

To measure the impact of these hourly wage gains in Minnesota, I use two approaches. First, I consider the wage gains that workers must have received for minimum wage violations to decline 50% due to the law. Using CPS final weights to obtain population estimates, the law is associated with 63,177 fewer violations annually. Workers in Minnesota with violations only work 18 hours a week at their main job and have an average underpayment of $0.90. To bring these workers exactly into compliance, they would have to receive additional wages of $0.90 per hour multiplied by 18 hours a week and 50 weeks a year for each of the 63,177 workers. That total wage gain is $57 million for Minnesota workers previously experiencing a minimum wage violation. A second method of estimating wage gains is based on the hourly wage gains from Table 10. Workers in industries that are ranked in the top ten for violations saw an hourly wage gain of $0.48. These 311,820 workers in Minnesota work 26 hours per week at their main job on average. A similar calculation leads to wage gains of $194 million. This larger figure reflects that wage gains likely do not only occur for those with violations. Employers deterred from wage theft may raise wages above the minimum wage, and may have to raise wages for all employees, not just those with violations.

F. Synthetic Control Analysis

Finally, to ensure that the selection of regional states as controls is not driving the results, this section considers a synthetic control as a comparison group. Regional states were selected as comparators to proxy for several attributes—wage rates, minimum wages, demographics—based on geography. Often, nearby states share these attributes. But as seen in Tables 4, 6, and 8 above, summary statistics for control groups were not always similar to the statistics of the treated state. Synthetic control analysis can select a weighted group of states most similar to the treated state based on a minimization of mean squared errors of pre-treatment variables. With balanced monthly data at the state level, I selected the summary statistics shown in Table 4 for Minnesota, which include wage rates, minimum wages, and demographic characteristics. The analysis resulted in Nebraska, Hawaii, Washington, the District of Columbia, and Massachusetts as receiving weights, in that order, to create a synthetic control of Minnesota based on those variables. Table 11 displays similar summary statistics as in Table 4 based on the synthetic control of Minnesota.

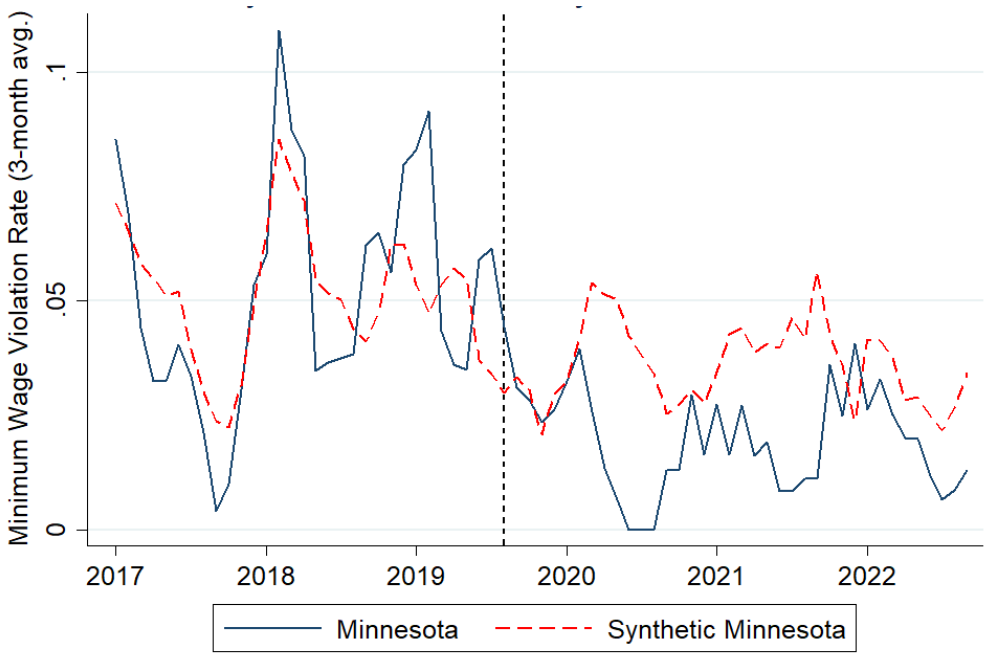
Table 11: Summary Statistics for Minnesota and Synthetic Minnesota

	(1) Minnesota	(2) Synthetic Minnesota
Hourly wage ($)	19.30	19.08
Minimum wage, average	9.64	9.98
Age	38.94	38.39
Female (%)	54.4	53.2
Black (%)	9.1	9.0
Hispanic (%)	8.1	16.4
Union (%)	11.7	12.3
No High School Diploma	14.6	14.1

Source: CPS-ORG using earning weights, spanning 2017-2022 unless otherwise noted.
Notes: Synthetic Minnesota is a weighted collection of states to minimize the mean squared error of the above predictors in the pre-treatment period. The states and their weights are Nebraska (0.407), Hawaii (0.324), Washington (0.121), District of Columbia (0.085) and Massachusetts (0.062) Dollar values in 2020 dollars.

The predictors in the synthetic group are much more closely aligned to Minnesota than the previous regional control group. Still, there are some differences, including the percentage of Hispanic workers. The following graph also displays some slight differences in the monthly minimum wage violation rate, a very noisy measure. This graph uses a 3-month moving average, but still displays large spikes in the beginning of a calendar year, indicating the initial reported noncompliance with a new state minimum wage that just went into effect.

Figure 6: Synthetic Control Analysis of Minnesota



The synthetic control dashed line in Figure 6 matches Minnesota's minimum wage violation rate somewhat well in the pre-period, with corresponding dips and rises, though not as large in magnitude as in Minnesota. However, the post-period displays larger, sustained gaps between the two lines, with Minnesota consistently lower than synthetic Minnesota. The gap in this graph begins around 2020, suggesting that compared to a synthetic Minnesota, the effect of the law may have taken several months to take effect. This synthetic control analysis reflects noise in measuring minimum wage violations, but it also provides further support for the effectiveness of Minnesota's law.

VI. DISCUSSION

Minnesota has enacted a wage theft criminalization law that successfully lowered minimum wage violation rates by around 50% relative to control states. Corresponding with fewer minimum wage violations, workers at risk for a violation in Minnesota report higher

wages due to these laws. However, because Minnesota started with high violation rates compared to other states—partly due to their higher state minimum wages—these wage theft criminalization laws may not have identical effects in other states.

The mechanism for these effects was not directly identified, but Minnesota's law provides a clear connection to the theory of minimum wage noncompliance from Ashenfelter and Smith (1979). Employers who engage in cost-benefit analysis of complying with labor laws are deterred by both enforcement levels and penalty levels. Minnesota's law greatly increased the penalties for wage theft and the funding for wage theft investigators and enforcers. Furthermore, perceptions of the severity and enforcement of the law were likely well-aligned due to the legal mandate that all employers post a related notice at all worksites. State agencies gained new investigatory powers, and a following law passed in mid-2022 grants Minnesota's Commerce Fraud Bureau even greater legal powers to investigate wage theft (Nesterak 2022). For employers, these are significant deterrents.

California and Colorado enacted laws that similarly implemented severe penalties for wage theft but did not commit to enforcement like Minnesota did. Throughout this analysis, the effects of each state's law on minimum wage violations and hourly wages have been more mixed than the effects seen in Minnesota. In California, strong effects on minimum wage violations emerge in Table 8, but not when limiting the analysis to post-COVID data. In table 10, no effects on wage gains are seen in California for workers at-risk of minimum wage violations. In Colorado, only by excluding central city respondents to address wage theft laws in Denver did Colorado's law show any significant effect on minimum wage violations. This differential impact of these laws in Colorado when considering all respondents versus non-central city

respondents is not clear, but based on the relevant changes occurring in Denver, the analysis of the state's law is likely easier identified by excluding central city respondents.

There are a few possibilities for why the laws in California and Colorado had mixed results compared to Minnesota. First, it is likely that a lack of increased enforcement funding or powers associated with California and Colorado's laws prevented a clear deterrent effect. This reason would support Chalfin and McCrary's summary of the criminal deterrence literature that solely increasing sanctions typically has a smaller effect than increasing enforcement or increasing both. Second, the purpose of Colorado's law was primarily to deter human trafficking for labor, and Colorado targeted human trafficking by criminalizing wage theft. It is possible that employers not engaging in human trafficking but still flouting Colorado's minimum wage were not as aware of the new penalties for wage theft. Finally, since minimum wage violations are just one form of wage theft, it is possible that this law had clearer effects on other forms of wage theft such as overtime pay violations. Workers earning overtime were excluded from this sample, and the law's effect on overtime pay violations is unknown.

Given the significant impact of these laws, the lack of criminal enforcement of them is even more surprising. So far, these states have been able to deter minimum wage violations without sending many—if any—employers to prison. But it is not clear how long that can last. The event study in Minnesota highlights this concern—the law's most significant effects took place in the first two years after enactment. The effect over the rest of the period in this analysis shows a slightly weaker effect. If employers become aware that there are extremely few criminal charges brought for theft of wages, the deterrent effect of this law may wane. The state of Minnesota has continued to crack down on wage theft since the passage of this law, alleviating this concern for now. Still, deterrence relies on credible threats of enforcement. While halving

high rates of minimum wage violations without employers sentenced to jailtime is likely a victory for both opponents and proponents of these laws, such a result may weaken over time without more enforcement.

This research contributes a piece to the larger puzzle of what an optimal wage and hour enforcement regime looks like. Enacting severe criminal penalties without imprisoning employers may reduce wage theft without the social and economic costs of incarceration, at least in the short-term. These are both good outcomes, but it is not clear that they are sustainable in the long-term. Again, more enforcement is likely needed for sustained reductions in wage theft and could come in the form of more prosecutions or more investigations—both costly to employers and enforcers. Further, criminal sanctions for employers may produce unequal outcomes, with some employers facing far steeper sanctions than others because prosecutors have leeway to bring harsh penalties but cannot target every intentionally noncompliant employer. As such, wage and hour enforcers with these criminal sanctions will make examples out of some employers to deter others.

But deterring wage theft is a far better enforcement strategy than trying to recover wages after-the-fact. And between greater penalties, or greater probabilities of detection, these state laws suggest policymakers are leaning hard on the former. This is likely because there are simply too many pay periods for too many workers in too many different workplaces for enforcers to detect wage theft at significant rates. It is difficult to imagine a widespread system of wage and hour oversight where enforcers can easily observe wage and hour compliance without sweeping technological or regulatory changes.

One possible route to enhance detection of wage and hour compliance may be through labor unions. More research is needed to examine the interplay between these criminal penalties

and wage and hour compliance in unionized workforces. But empowering workers through labor unions could provide another mechanism for increasing detection of wage and hour violations. More localized worker power might change employer perceptions of the costs of wage theft. As such, future research should explore the interaction between wage theft detection and union status.

In line with the theory of minimum wage noncompliance, severe criminal penalties in these states have reduced minimum wage violations. But just as penalties play a role in the theory of deterrence, it is also likely that enforcement must ramp up for these effects to persist. Currently, though, these laws have reduced wage theft without triggering concerns of imprisoning employers. Other states seeking to protect workers may see these successes and adopt the severe criminal penalties of these laws; however, as theory suggests, the penalties alone may not be enough. Labor enforcement policies of a state play another critical role in deterring wage theft.

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CHAPTER 2: PUBLIC PERCEPTIONS OF WAGE AND HOUR RIGHTS

I. INTRODUCTION

Do workers know their rights? In a legal system that puts the onus on workers to advance their claims, rights are difficult to protect unless workers are aware of them. Prior research suggests workers not only are unaware of their rights under the law, but also systematically misunderstand their rights under the law, including in employment law (Kim 1997; 1999).

Wage theft and employee misclassification are two prevalent, impactful forms of employment law violations (Bernhardt et al 2009; Deknatel and Hoff-Downing 2015). There are many reasons for these violations, including workers failing to "name" a right, to "blame" their employer, or to "claim" their right through a lawsuit or agency complaint (Alexander & Prasad 2014; Fritz-Mauer 2022). Naming a right requires objective legal knowledge to identify a grievance. Blaming means attributing the grievance to someone. Claiming refers to a formal legal action to remedy the grievance. Each action may present a significant impediment for aggrieved workers.

This chapter focuses on the first of these impediments: naming the right. In this chain of actions for workers to enforce their legal rights, naming the right is the first step, yet research on workers' objective knowledge of these legal topics is lacking.

This study begins to fill that gap within the academic literature. Using an experimental vignette survey of over 3,000 respondents, this study reports public perceptions of overtime pay, minimum wages, compensable time, employee classifications, and contractual language that alters these topics. In simple scenarios, respondents knew their wage and hour rights much better than previous studies of objective legal knowledge have found. Over 90% of respondents correctly recognized that workers in simple, short vignettes had legal rights to a minimum wage

and to overtime pay. This finding holds when focusing the analysis to respondents with lower wages, or less education, or other demographic traits. Still, several topics proved challenging for respondents. This survey identifies the topics within employment law that confuse respondents and deserve more attention by workers, their advocates, and wage and hour enforcers.

This experiment also varied each question to explore respondent perceptions of other work law concepts such as overtime exemptions, how immigrant status impacts FLSA rights, and the importance of the ABC factors for employee classification. Application of this experimental design reveals several misperceptions, including the misperception that salaried workers do not have the legal right to overtime pay. Another notable misperception in this survey is that the median respondent believed the federal minimum wage was $15 per hour, more than twice its value of $7.25. This finding holds when focusing only on hourly workers, low-wage workers, or on workers in states and cities where the federal minimum wage is binding. A likely reason for this misperception is the small and declining salience of the federal minimum wage—only 1.4% of hourly workers are paid the federal minimum wage.

The results of the survey suggest that, in simple scenarios, workers have accurate perceptions of the most frequently encountered wage and hour rights. But for lesser-known rights, or in scenarios with any complexity, workers frequently misperceive wage and hour rights. This survey identifies the specific legal issues that add complexity and limit workers' ability to name their rights. After these findings, this chapter discusses approaches to limiting wage and hour violations given these estimates of worker perceptions, including improving education, strengthening enforcement, and simplifying laws.

II. PRIOR RESEARCH

Pauleen Kim conducted foundational research on objective knowledge of legal rights in employment (Kim 1997). Using simple questions to test knowledge about the at-will default rule for terminations, she asked over 330 unemployed workers in person at an unemployment insurance office whether hypothetical terminations were lawful. While the at-will default rule allows employers to fire workers for any non-discriminatory, non-retaliatory reason, or for no reason at all, 89% of respondents erroneously believed it to be unlawful for an employer to fire an employee due to personal dislike. Her results have been replicated in further studies (Kim 1999; Rudy 2002), and these findings lead her to conclude that "respondents seriously overestimated the level of job security afforded by law."

Experimental evidence suggests that workers hold other mistaken beliefs about employment law. J.J. Prescott, Evan Starr, and Norman Bishara surveyed over 11,500 labor force participants through Qualtrics on the enforceability of noncompete clauses in employment contracts (Starr, Prescott, and Bishara 2021). First, the authors found evidence of the prevalence of noncompete clauses—18% of respondents currently had noncompete agreements in their employment contract, while nearly 40% had previously had one. The authors then directly asked questions about what level of government determines noncompete enforceability (states do, only 23% knew this) and the enforceability of noncompetes in the respondent's state. Over 70% of employees with unenforceable noncompetes mistakenly believed that their contracts could be enforced (Prescott and Starr 2022). These beliefs impacted behavior, as mistaken employees were less likely to consider searching for other jobs with a competitor. When the authors informed subjects about the law on noncompete enforceability, fewer mistakes were made, and

employees with unenforceable noncompetes reported feeling less constrained in searching for a new job (Prescott and Starr 2022).

Mistaken beliefs about contracts are critical considering that the employment relationship is a form of contract. Tess Wilkinson-Ryan has also deeply researched contract enforceability, in particular the objective beliefs about contracts and moral judgments surrounding breach and fine-print clauses. In a 2015 article, she and David Hoffman presented 296 Amazon mTurk respondents with several vignettes about contract formation, finding that simple intuitions guide respondent answers, even when more complicated legal situations arise (Wilkinson-Ryan and Hoffman 2015). With each additional step in the lead-up to contract formation, subjects felt morally conflicted about breaking a deal, even before the law would recognize a contract was complete. Furthermore, in a 2017 study, Wilkinson-Ryan presented mTurk respondents with vignettes about unfavorable terms in consumer contracts (Wilkinson-Ryan 2017). Respondents viewed the terms as morally and legally stronger when the terms were clauses in a signed contract, as opposed to company policies on a website. When presented with information regarding the enforceability of the terms by a court, respondents updated their perceptions of who was to blame, and whether the terms should be enforced. Researchers have similarly explored objective knowledge outside employment and contract law, finding similar results that people were generally unaware of the law.[22]

The broad literature of objective knowledge of the law, and the more specific literature on knowledge of employment law topics, reveals persistent mistaken beliefs. But wage and hour

[22] Darley et al. tested 203 public university employees—primarily staff members, but also faculty and student-workers—in four states on four important criminal law issues. This sample was chosen due to differences in education, occupation, and income. The survey asked whether there is a duty to help a person in distress, report a known felon, or retreat instead of using deadly force. For each legal issue, three out of the four states had a "majority" doctrinal approach, while one state used a "minority" approach to resolving the criminal legal issue. The authors concluded citizens "showed no particular knowledge" on these issues, including for the unique minority.

rights may be different due to their salience. People may not know whether their state guarantees a constitutional right to a clean environment (Rowell 2017), but they may know the rights that govern their income and employment. Not only are such wage and hour rights likely more important to people through their economic security, but many wage and hour rights are also more frequently encountered through regular paychecks and ubiquitous workplace notices mandated by the FLSA.

On the other hand, evidence indicates that employers commonly violate workers' wage and hour rights, calling into question how much workers know about their legal rights. The Unregulated Work Survey by Bernhardt et al. (2009) was designed to measure violations of workplace rights and surveyed 4,387 low-wage workers in New York, Chicago, and Los Angeles. The research team found 25.9% of workers experienced a minimum wage violation in the past week, and of all workers at-risk of overtime pay violations, 76.3% experienced one in the past week. It may be the case that workers can name these relevant wage and hour rights, but the violations occur due to failures in blaming their employer or filing formal claims for their wages. But with rampant employment law violations, there is little research on whether workers can name their rights, the first step in workers enforcing their rights. This chapter addresses that shortcoming by experimentally surveying over 3,000 workers on their perceptions of their rights.

One previous, nonexperimental survey has asked workers about wage and hour rights, with three questions on substantive legal knowledge (Alexander & Prasad 2014).[23] These questions were asked as part of the Unregulated Work Survey (Bernhardt et al. 2009). The results for these questions were not reported in the main study by Bernhardt et al., because that

[23] The first question asked workers what the minimum wage in their city was. The second question asked if employers were required to pay workers more than their usual wage when they worked more than 40 hours in a week. The third question asked if employers could pay undocumented workers less than the minimum wage.

study focused on reported workplace violations. A follow-up article using data from this survey aggregates these questions to report that 41% of respondents "had accurate substantive legal knowledge in the area of wage and hour law" (Alexander & Prasad 2014). The article additionally reports 25% of workers overestimated the local minimum wage, and 21% underestimated the local minimum wage. But results for each question were not individually reported, nor were they the focus of the article. With just one sample from 2008 of low-wage workers in three cities surveyed on their personal experiences, much more research is needed to accurately understand public perceptions of wage and hour rights.

III. SURVEY METHODOLOGY

Following in the footsteps of Kim and others, I study objective knowledge of wage and hour rights, and how those rights interact with both worker classification and worker characteristics. I present respondents with short vignettes about workers and ask if that worker is legally entitled to a workplace right, such as overtime payments or a minimum wage. I ask about specific rights that are important and clearly stated in the law, yet often misperceived, such as a non-exempt salaried worker's right to overtime payments under the Fair Labor Standards Act.[24] These vignettes are experimental in that I slightly vary the questions that respondents see, allowing for analysis of the importance of these slight differences. Because of the dearth of research on the objective knowledge of wage and hour rights and employee classifications, this experimental survey asks many questions about these legal fields.

[24] FACT SHEET #23: OVERTIME PAY REQUIREMENTS OF THE FLSA, DEP'T LABOR WAGE & HOUR DIV. (2019) (listing under "Typical Problems" that, "A fixed salary for a regular workweek longer than 40 hours does not discharge FLSA statutory obligations.").

Experimental vignette studies are frequently used in legal literature.[25] They are most used to generate experimental data in the absence of observational data. For this survey, experimental vignettes were chosen over directly asking workers about their workplace rights to conform to prior legal research and to draw inferences on several experimental issues of interest without directly priming respondents on that topic. Vignettes also standardize the employment situation that respondents consider, limiting the introduction of personal employment details. This survey uses short vignettes of different workers to ask questions on overtime pay, minimum wages, compensable time, and employee classification with experimental variations to study the most significant features these legal topics.

In using experimental vignettes, this survey may overstate the ability of workers to name their rights compared to naming rights in their own unique employment situation. Real-life employment provides more difficulties in naming wage and hour rights than my vignettes—including power dynamics, relationships with employers, and plenty of extraneous information. Another consideration for the methodology of this survey and the interpretation of its results is that many states have workplace rules and regulations that differ from federal laws and regulations. Still, many states abide by the U.S. Department of Labor's rules and regulations under the Fair Labor Standards Act. The results and discussion sections contain added considerations of state-specific wage and hour rights.

Subjects were voluntarily recruited via Amazon's Mechanical Turk ("mTurk") survey service. All subjects were at least 18 years old and lived in the United States. Respondents were paid $2 to take a survey that took approximately 12 minutes to complete. This pay rate is above

[25] Shinall (2020) uses experimental vignettes to test decisionmakers' willingness to accommodate job candidates and employees under the Americans with Disabilities Act. Wilkinson-Ryan (2017) uses experimental vignettes to measure beliefs regarding contract enforceability.

the minimum wage in most states and is in line with best practices for receiving quality data on mTurk (Robertson & Yoon 2019). mTurk provides a sample that is convenient, cheap, fast, reliable, and diverse, especially when compared to other common convenience samples, such as college students. Compared to the general labor force, mTurk workers are younger and more educated (Hitlin, Page, and Rainie 2016). This trend is even stronger in my sample. Table 1 shows demographic and employment characteristics of this mTurk sample compared to U.S. estimates from the Census.

Table 1: Demographic and Employment Characteristics of mTurk Sample

Demographic Characteristic	mTurk Sample	U.S. Census Statistic	Employment Characteristic	mTurk Sample	U.S. Census Statistic
Female	52%	50.5%	Currently working for pay or profit	98.0%	63.0%
Age	38.3	41.7	Household Income	$72,091	$70,784
Married	71.9%	50%	Earns <$30,000 per year ($15 hourly wage)	23.7%	31.3%
White	87.7%	75.8%	Hourly Worker	20.3%	55.8%
Black	10.0%	13.6%	Currently earns overtime	63.3%	20%
Hispanic / Latino	27.5%	18.9%	Currently earns tips	27.6%	
Bachelor's Degree or Higher	87.5%	32.9%	Currently earns commission	23.1%	
Lives in a city	65.5%	80.7%	Ever worked as contractor	61.8%	-

Notes: The full sample is 3,018 respondents. U.S. Census statistics come from various Census analyses. For most demographic statistics: https://www.census.gov/quickfacts/fact/table/US/PST045221. For age: https://www.bls.gov/emp/tables/median-age-labor-force.htm. For percent living in a city: https://www.census.gov/programs-surveys/geography/guidance/geo-areas/urban-rural/ua-facts.html. For marriage rate: https://www.census.gov/newsroom/press-releases/2021/families-and-living-arrangements.html. For median household income: https://www.census.gov/library/publications/2022/demo/p60-276.html. For percent earning under $30,000, the Census reports earnings of people aged 15 and older in a table here: https://www.census.gov/data/tables/time-series/demo/income-poverty/cps-pinc/pinc-08.2021.html#list-tab-FSTQAO8RE0CCGZ93P4. For percent of hourly workers: https://www.bls.gov/opub/reports/minimum-wage/2021/home.htm. For percent earning overtime, tips, and commission, the Current Population Survey (CPS) reports these together in the dataset at https://cps.ipums.org/cps/. Analysis of CPS overtime, tips, commission data available at: https://microdata.epi.org/variables/income/otcrec/. There is no measure of percent of people who have ever worked as an independent contractor. The percent of workers in 2017 who were independent contractors is estimated at 6.9%: https://www.bls.gov/news.release/conemp.nr0.htm.

Table 1 shows that this sample of 3,018 mTurk respondents are more likely to be Hispanic, married, and employed than is the average American. This sample is also highly educated. Over 87% of the sample reported holding a bachelor's degree, compared to just 32.9% of Americans. Because education levels likely influence measures of objective legal knowledge, results below are presented separately by holding a bachelor's degree or not. Nearly all of the sample reported to be working for pay or profit, and these workers reported earning overtime, tips, or commissions at higher rates than workers in the U.S. Census Bureau's Current Population Survey ("CPS"). This sample had a household income similar to the median U.S. household income. Just under a quarter of this sample reported earning under $30,000 per year,

equivalent to earning a $15 hourly wage while working full time. More respondents than not reported experience as an independent contractor at some point in their career.

Two important instructions were given to respondents before the survey began. First, respondents were told to answer with their best belief of what the law is, not their opinion of what the law should be. Second, respondents were asked not to look factual information up online. This instruction is in line with best practices for administering online surveys on facts (Goodman 2013). There are several reasons to think that respondents did not look information up online. First, mTurk workers are incentivized to complete questions quickly in this survey. Respondents did not have additional incentives for answering questions correctly. Second, the average time for survey completion was about 12 minutes, under the 15 minutes that respondents in the survey pilot took. Third, as described below, respondents performed worst on the easiest questions to look information up online: the questions that asked respondents to state the federal minimum wage and their local minimum wage. Only 16% correctly stated the federal minimum wage, despite the ease of finding the answer via online search.

This section will describe the survey questions, identify the features of workplace law on which I am testing respondents, and explain what the correct answer to each question is. Results and analysis of each question follow in the next section.

A. Overtime Pay Questions

Overtime pay is a crucial source of income for many workers. But there is little research to understand what workers know—or don't know—about the legal rules surrounding overtime pay. Knowledge about these rules matters because overtime pay violations are common, and

remedying these violations to collect overtime pay begins with identifying, or naming, the right that has been violated (Bernhardt et al. 2009; Alexander & Prasad 2014).

Overtime Question 1: Robert's Overtime Pay by Pay Rate and Pay Schedule

To qualify for overtime, workers must be covered by the FLSA and must be non-exempt from the FLSA. Nearly all workers are covered by the FLSA, either by enterprise coverage or individual coverage.[26] The much trickier question regarding whether overtime pay applies to a worker is whether that worker is exempt from the FLSA. There are several different exemptions under the FLSA, including some occupation-specific exemptions, but the three main exemptions are based on the primary duties of workers paid a salary above a threshold. These exemptions are the executive, administrative, and professional (EAP) exemptions.

The executive exemption is meant to relieve businesses of the requirement of paying overtime to their executives. Federal regulations exempt from the FLSA any employee who meets all of the following: 1) the employee is paid on a salary basis, above the rate of $684 per week; 2) the employee's primary duty is managing the enterprise; 3) the employee regularly directs the work of at least two or more other full-time employees; and 4) the employee has the authority to hire or fire other employees, or the employee's suggestions and recommendations as to the hiring, firing, advancement, promotion or any other change of status of other employees must be given particular weight.[27]

[26] Enterprise coverage under the FLSA covers all employees of businesses that do business of at least $500,000. In the rare case that an employee is not covered through enterprise coverage, individual coverage under the FLSA covers all employees who are regularly involved in interstate commerce.

[27] In addition to these executive, administrative, and professional exemptions, there is a related exemption for highly compensated employees (HCE) who earn a salary above $107,432, perform non-manual labor, and who customarily meet at least one of the listed primary duties under the executive, administrative, or professional exemptions. This HCE exemption greatly eases overtime requirements for employers of higher earners.

Identifying who qualifies as an executive for this exemption is not always clear. There can be difficulties in determining if an employee is paid on a salary basis, what the employee's primary duty is, whether that primary duty qualifies as managing the enterprise, if the employee directs others' work, and if the employee's hiring and firing recommendations are given enough weight.

The administrative and professional exemptions have an identical requirement that the employee be paid on a salary basis above the rate of $684 per week. They also both have similar requirements that test what the employee's "primary duty" is. The administrative exemption has a particularly opaque primary duty test, and of these three exemptions, is likely the most applied.[28] This survey investigates the executive exemption, which recent research finds that many companies exploit to annually avoid an estimated $4 billion in overtime pay by labeling workers who fail the executive primary duty test as "managers" (Cohen, Gurul, Ozel 2023).[29]

There are many features of overtime pay laws and regulations that are worth testing in this survey because they all provide opportunities for losses of deserved overtime pay due to confusion, administrative error, or intentional wage theft. First, through the vignette provided below, I ask a basic question about whether a worker is legally entitled to overtime payments for working 45 hours in a work week. I include variations of whether the worker is paid $10 per hour, $20 per hour, a $20,000 annual salary, or a $40,000 salary. These variations can provide evidence of how hourly pay compared to salaried pay impacts perceptions of overtime pay

[28] In addition to the salary requirement, the administrative exemption can only be applied if "The employee's primary duty must be the performance of office or non-manual work directly related to the management or general business operations of the employer or the employer's customers; and the employee's primary duty includes the exercise of discretion and independent judgment with respect to matters of significance." (Department of Labor 2023).

[29] Of course, a job title of manager does not discharge the legal requirement to pay overtime pay when the worker fails the primary duty test. The opaqueness of primary duty tests and broader misunderstandings regarding overtime pay contribute to firms' ability to avoid liability for this illegal tactic. This chapter aims to measure these misunderstandings by workers regarding overtime pay.

rights, and similarly for low pay levels compared to higher pay levels. The question text is below, with variations in brackets and in bold:

Robert works at Big Box Warehouse. Robert fills packages with supplies and loads them onto trucks, and he completes any other tasks his managers ask him to do.

Robert is paid ***[$10 per hour / $20 per hour / an annual salary of $20,000 / an annual salary of $40,000]*** *and usually works 40 hours each week. The last few weeks have been busy at work, and Robert has worked 45 hours per week.*

Is Robert legally entitled to overtime payments for his work beyond 40 hours per week?

- *Yes*
- *No*

In all four variations of this question, the correct answer is Yes. Robert is legally entitled to overtime payments regardless of whether he is paid on an hourly or salary basis, and regardless of whether he is paid the lower amounts or the higher amounts.

While these distinctions of hourly or salaried pay and lower or higher pay do not matter in Robert's case, federal regulations for overtime law make both distinctions relevant in other cases. Such distinctions may lead to general confusion. Employees who are exempt from the FLSA under the EAP exemptions must be paid on a salaried basis at a rate not less than $684 per week, which translates to $35,568 per year. As a result, some of the public may think all salaried workers cannot earn overtime, or that all workers making above $35,568 per year cannot earn overtime. However, Robert does not qualify for any of the EAP exemptions because his primary duty does not satisfy the primary duty test for any of those exemptions. Therefore, Robert must be paid an overtime rate of one and half times his regular wage for all hours worked above 40, regardless of how he is paid across these four variations.

Overtime Question 2: Justin's Amount of, and Reason for, Overtime Hours

Next, I present a short vignette of a similar worker Justin, paid hourly, who works either 42 hours or 50 hours. I also vary this question by the reason for the overtime hours. One third of respondents were told Justin works slowly, another third of respondents were told the manager gave Justin too much work, and the final third were not given a reason. Each of these respondents were asked the same question as before—whether this worker is legally entitled to overtime payments for his work beyond 40 hours.

> *Justin is Robert's coworker at Big Box Warehouse and does the same job as Robert, packaging supplies and loading them onto trucks. Justin is paid an hourly wage of $15 per hour. The past few weeks Justin has worked* ***[A, C, E: 42 / B, D, F: 50]*** *hours per week.*
>
> ***[A, B]: The reason Justin has worked [A: 42 / B: 50] hours is because he cannot complete all the tasks his manager gives him in 40 hours. Justin works more slowly than other employees, who can complete their assigned tasks in 40 hours. Justin's manager knows that Justin is working more than 40 hours per week.***
>
> ***[C, D]: The reason Justin has worked [C: 42 / D: 50] hours is because he cannot complete all the tasks his manager gives him in 40 hours. Justin's manager knows that Justin is working more than 40 hours per week.***
>
> ***[E, F]: Justin's manager knows that Justin is working more than 40 hours per week.***
>
> *Is Justin legally entitled to overtime payments for his work beyond 40 hours per week?*
> - *Yes*
> - *No*

This question varies two factors that have no bearing on overtime pay rights: the number of hours above 40, and the reason for overtime hours. The correct answer in all six variations is Yes, Justin is legally entitled to overtime pay. Much research has shown that people often equate informal norms with moral actions or legal rights, including in the employment context, so notions of fairness may influence the results of this question (Wilkinson-Ryan 2017; Kim 1999). Working overtime for just two hours may be seen as less deserving of overtime pay than working

an extra ten hours. Likewise, working overtime because you were slower may be seen as less deserving than working overtime because your boss gave you too much work.

Overtime Question 3: Justin's Overtime under the Company Policy

Respondents then answered another question about this same hourly worker, Justin. In these vignettes, Justin worked 50 hours in a week but forgot about a company overtime policy. Half of the respondents were told that the company requires workers to get a manager's approval before overtime hours may be worked, while the other half were told the company bans overtime payments. This latter situation of banning overtime payments is explicitly illegal, and less common than the "approval" policy for overtime, which is both legal and widely used by firms seeking to limit overtime payments. Additionally, respondents were either told the overtime policy is part of Justin's contract that he signed, or part of the company's employee handbook.

Now suppose Big Box Warehouse has a company policy that

[A, C]: work beyond 40 hours must be approved by a manager first.
[B, D]: it does not pay higher wages for work beyond 40 hours.

[A, B]: This policy is in Justin's contract, which he signed.
[C, D]: This policy is written in the employee handbook.

Justin forgot about this policy, and he worked 50 hours last week.

Is Justin legally entitled to overtime payments for his work beyond 40 hours last week?

- *Yes*
- *No*

Regardless of the legality of the company's overtime policy, because Justin is a non-exempt employee who worked more than 40 hours in a week, he is entitled to overtime payments. His employer may rightfully discipline Justin for seeking overtime payments after he forgot about a company policy, but Justin still has the right to collect overtime. Whether the

overtime policy is in Justin's contract or handbook also does not matter, but respondents may see that it does. People may view an explicit contract term as more legally enforceable than implicit contract terms (Wilkinson-Ryan 2017). However, in employment disputes, courts may view terms in employee handbooks as equivalent to contractual terms. Thus, informed respondents may not treat handbook terms and contract terms differently because they are aware that both carry legal contractual weight. This question seeks to understand how respondents view the importance of where a term is located in an employment relationship.

Overtime Question 4: Sarah's Exempt Status by Duty Level and Pay Schedule

The final question on overtime pay rights concerns the executive exemption from the FLSA. Since the executive exemption requires a primary duty of managing the enterprise, along with overseeing at least two employees and having significant input on hiring and firing workers, applying the primary duty test may not be straightforward for low-level managers. To test the primary duty, the survey presented Sarah, an assistant manager at Big Box Warehouse, who had one of three duty levels.

Sarah is an Assistant Manager at Big Box Warehouse.

[A/B: While she sometimes supervises other workers, she does not have the power to hire or fire workers. She spends most of her time at work packaging boxes for delivery.

C/D: While she sometimes packages boxes for delivery, she spends most of her time at work managing several workers on the production floor, and reporting to the Senior Manager. Sarah doesn't directly hire or fire workers, but her input is taken seriously.

E/F: While she sometimes supervises workers, she spends most of her time at work making long-term strategy decisions for the company. She never packages boxes for delivery, and she is often in charge of hiring or firing workers.]

Sarah is paid ***[A/C/E: $20 per hour; B/D/F: a $40,000 annual salary]*** *and often works 50-hour weeks.*

Is Sarah legally entitled to overtime payments for her work beyond 40 hours in a week?

- *Yes*
- *No*

The low duty level variation states Sarah supervises workers, but mostly does manual labor and does not hire or fire. This duty level would not pass the primary duty test because she has no input for hiring and firing and does not manage the enterprise. The middle duty level has Sarah spending most of her time managing workers, sometimes performing manual labor, and shows her input on hiring and firing is taken seriously. This middle duty level would likely pass the primary duty test for the executive exemption, although it remains unclear whether she qualifies as "managing the enterprise." The high duty level variation clearly satisfies the primary duty test because Sarah is making long-term strategy decisions for the company and regularly hires and fires workers. Finally, this question varies whether Sarah is paid hourly or is salaried, for a total of six variations to this question.

The correct answer to whether Sarah is legally entitled to overtime pay depends on the variation. In all variations where Sarah is paid hourly, the correct answer is Yes, because to be exempt from overtime pay you must be paid a salary. Exempt workers also must pass the primary duty test, which includes managing the enterprise. Based on the above analysis of whether Sarah manages the enterprise, for the remaining three variations where Sarah is paid a salary, the correct answer is Yes for the low duty level variation, indeterminate for the middle duty level variation, and No for the high duty level variation.

B. Minimum Wage Questions

Minimum Wage Questions 1 and 2: Federal and Local Minimum Wages

To better understand respondents' knowledge of minimum wage rights, this survey asked them to state both the federal minimum wage and the local minimum wage where they work. The question provided a blank text box for respondents to answer. The question was formatted to

force a response between $1 and $30 per hour. Respondents were informed about this range only if they failed to answer between $1 and $30 on their first attempt. This range was chosen to allow a wide range of responses both above and below the federal minimum wage of $7.25 and local minimum wages, but also to prevent blatantly implausible answers (such as $0, negative answers, or answers above $30 per hour). A minimum wage of $30 per hour seems a sufficient upper bound on answers since this wage is more than four times as much as the federal minimum wage, and roughly twice as high as the highest local minimum wages in the United States. Any higher limit would not provide further information about a respondent's lack of minimum wage knowledge.

Respondents provided demographic information on the state where they work. The next demographic question was a drop-down list of cities or counties within that state that either have enacted a local minimum wage that differs from the state's or are major cities or counties in the state. With this information, I match a respondent's guess about their local minimum wage to the true local minimum wage.

Minimum Wage Question 3: Erik or Pedro's FLSA Rights by Immigration Status

I next ask questions on the FLSA rights of minimum wages and overtime pay for a worker in a diner who is either an American citizen by birth, an American citizen by naturalization, a documented immigrant, or an undocumented immigrant. I present the scenario and the first question, asking whether the worker has a right to a minimum wage below. An immediate follow-up question asked whether the worker has a right to overtime payments.

[A, B, C, D: Erik / E, F, G, H: Pedro]

_____ works as a cook in a diner. He makes food for customers and follows orders from the head cook.

[A, E: _____ was born in the United States and is a U.S. Citizen.
B, F: _____ immigrated to the United States and was naturalized several years ago, meaning he is now a U.S. citizen.
C, G: _____ is an immigrant, with documentation, but he is not a citizen of the United States.
D, H: _____ is an undocumented immigrant.]

_____ is paid an hourly wage of $6 an hour and usually works 50 hours per week.

Is _____ legally entitled to earn a minimum wage of greater than $6 per hour?

- *Yes*
- *No*

The FLSA does not apply differently to workers based on immigration status. This premise holds true for undocumented workers; however, undocumented workers have many unique hurdles for enforcing their wage and hour rights that documented workers and American citizens do not. For both questions, the answer is "Yes," the worker in this scenario is legally entitled to both a minimum wage and to overtime pay. I also vary the names from Erik to Pedro to test if Hispanic ethnicity impacts people's perceptions of rights to a minimum wage.[30] The variation of the worker's name and perceived ethnicity also does not impact his FLSA rights.

Minimum Wage Question 4: Erik or Pedro's Waiver of FLSA rights

The next question on minimum wage rights supposes that this same worker signed a contract that waived his right to a minimum wage, and asks the same question:

[30] These names were chosen to signal a worker with Hispanic ethnicity and a worker with Northern European ethnicity. Previous research has shown that the name Pedro is one of the most frequently associated names with Hispanic ethnicity (Gaddis 2017). While similar research has not been conducted for associations with Northern European names or for the name Erik, databases on baby names show that the name Erik is popular in countries like Norway, Sweden, Slovenia, and the Czech Republic, while the name is declining in popularity in the United States (Behind the Name 2022).

*Suppose **[A-D: Erik / E-H: Pedro]** signed a contract when he began working at the diner. The contract says **[A-D: Erik / E-H: Pedro]** will be paid only his hourly wage, and he gives up any legal rights to a minimum wage and overtime payments.*

Is _____ legally entitled to earn a minimum wage of greater than $6 per hour?

- *Yes*
- *No*

Under the FLSA, employees cannot waive their rights to a minimum wage or to overtime pay.[31] Thus, the correct answer here is still, "Yes." The immediately following question in the survey asked whether this diner cook is legally entitled to overtime pay to see if respondents believed either, both, or neither FLSA right could be waived. The results to these two questions are presented together in the results section.

Minimum Wage Question 5: Brett's Tipped Minimum Wage

The final question on minimum wages is on the tipped minimum wage. This question asked respondents about a waiter who earned tips. Tipped workers are allowed to receive a subminimum wage, or a tipped minimum wage, so long as that the total wage with tip meets the regular federal and state tipped minimum wage standards. The federal tipped minimum wage is $2.13 per hour. Consequently, if a worker does not make enough in tips plus the subminimum wage to meet the federal minimum wage of $7.25 over a pay period, the employer must make up the difference to ensure the worker is paid at least $7.25 per hour.

[31] *Brooklyn Savings Bank v. O'Neil* 324 U.S. 697 (1945).

Brett works full-time as a waiter at the diner and earns tips.

[A, B]: The diner does not pay Brett a base wage.
[C, D]: The diner pays Brett a base wage of $2.50 per hour.

[A, C]: On average, Brett earns $4 in tips per hour.
[B, D]: On average, Brett earns $20 in tips per hour.

Is Brett legally entitled to any additional wage from the diner beyond his tips?

- *Yes*
- *No*

This question on tipped minimum wages had four variations, three of which required the employer to pay the worker a higher base wage, either because the worker was not receiving a base wage at all, or because the base wage and the tips did not meet the federal minimum wage of $7.25 per hour. The fourth variation, where the worker has a base wage of $2.50 per hour and earns $20 in tips per hour, is not legally entitled to a higher base wage under federal law. Many states have raised their tipped minimum wages such that the worker in this variation would also require a higher base wage under state wage and hour law. The survey results section compares respondents in these states to respondents in states where the state tipped minimum wage is still $2.13.

C. Compensable Time Questions

Another commonly litigated area of wage and hour law is compensable time. Compensable time refers to the exact times in an hourly worker's day that the employer is responsible for paying the employee's hourly wage. While these are usually easy questions for most hourly workers who punch in and out of work with timekeeping software, there are a couple of common situations that have been gray areas for employees, employers, and courts.

Compensable Time Question 1: Justin's 30 Minutes by Work Activity

One common compensable time dispute is over donning and doffing. Employees that are required to put on and take off, or don and doff, clothes that are necessary for the job are sometimes not paid for that time. While this can be a trivial amount of time for some workers, for workplaces where occupational safety and health regulations require extensive safety gear for employees, this time quickly adds up. If workers are not paid during this daily routine, they lose significant pay. Federal courts tend to decide that time spent donning and doffing is compensable only if there is a significant amount of time, and thus significant amount of pay, at issue.

A similar compensability question arises for time spent waiting to begin or end work. Like employers requiring workers to actively don and doff clothes, sometimes employers require employees to passively wait before entering or leaving a workplace, usually for security screenings. The Supreme Court found 9-0 in the 2014 case *Integrity Staffing Solutions, Inc. v. Busk* that this type of waiting time was not compensable because the waiting was not indispensable to the employment.[32] While the waiting time was required by the employer, the indispensability analysis tests if that waiting time is indispensable to the job, not whether the employee can forgo the waiting time.

This survey tests whether respondents view these two forms of waiting time differently. In the question below, the worker either dons and doffs for 30 minutes, or waits in security screenings for 30 minutes. In either case, the worker is unlikely to be compensated by a federal court, but respondents may view the situations differently.

[32] 574 U.S. 27 (2014).

[A]: Because Justin is responsible for packaging hazardous chemicals, Big Box Warehouse requires Justin to wear safety gear, including a protective suit, gloves, and goggles. Big Box Warehouse requires the safety gear to remain on the premises. Every day, Justin spends 15 minutes putting on the safety gear before work and another 15 minutes taking it off after work.

[B]: For safety and theft reasons, Big Box Warehouse requires workers to pass through a security checkpoint before and after they leave work. At the checkpoint, workers pass through a metal detector while security guards check their bags. Every day, Justin spends 15 minutes waiting in line to pass through the checkpoint before work and another 15 minutes waiting in line after work.

*Is Justin legally entitled to earn his $15 hourly wage for the 30 minutes he spends **[A: putting on and taking off safety gear before and after his work / B: waiting in line before and after his work]**?*

- *Yes*
- *No*

Compensable Time Question 2: Justin's Lunch Break

One other common question on compensable time surrounds time spent working during employee breaks. Employees are not guaranteed pay during meal breaks. But often employees work during those breaks anyway. The U.S. Department of Labor consistently states that only "bona fide" meal breaks are non-compensable. For a meal break to be bona fide, the employee must be completely relieved of work responsibilities (29 C.F.R. 785.19). Even inactive work duties, like waiting on-call to answer phone calls, may disqualify a meal period from being a "bona fide" break. (U.S. Department of Labor 2022).

*Justin gets a one-hour lunch break every day. Most days, Justin eats with coworkers outside. On Wednesdays, it is Justin's turn to answer the phone in the front office during the lunch break. Typically, each Wednesday, Justin answers **[A: only one phone call, lasting 5 minutes / B: four to five phone calls, which usually takes 40 minutes]**. During the rest of his Wednesday lunch hour, Justin eats and watches T.V.*

Is Justin legally entitled to earn his $15 hourly wage during his lunch break?
#1. Yes, every day of the week
#2. Yes, for the full hour he sits by the phone on Wednesdays
#3. Yes, only for the time on Wednesdays when he answers phone calls
#4. No

The worker in this question was paid hourly and answered phone calls once a week during his lunch break. The variations changed how much time he spent answering calls, but in

both cases, the correct answer is that his entire Wednesday lunch hour is fully compensable. This is because his meal break is not bona fide, as he is not completely relieved of all work duties.

D. Employee Classification Questions

A fundamental question within employment law is whether a worker is an employee or an independent contractor. This question is fundamental because of the rights, benefits, and protections that employees receive. But deciding whether a worker is an employee or an independent contractor is not always clear (Dubal 2017). The most important factor in answering this question depends on the amount of control a worker has over the details of their job.

All else equal, independent contractors are usually less expensive for an employer to hire than an employee, primarily because an employer's own policies, not the law, determine whether the employer pays payroll taxes or benefits for contractors. For this reason, many employers decide to either implicitly or explicitly disclaim any traditional employment relationship (Deknatel and Hoff-Downing 2015). Such a decision may be legal if the facts of the work relationship reflect the legal reality of independent contracting. But many employers also decide to label work relationships as independent contracting to evade employer costs of traditional employment. For example, a contract that labels a worker an independent contractor, in an otherwise clear case of traditional employment, does not by itself change the legal reality. However, this label sometimes occurs explicitly in contracts (Deknatel and Hoff-Downing 2015.)

Employee Classification Question 1: Robert's Classification

Following the description of Robert's job and whether he was entitled to overtime payments, the survey asked about Robert's employment classification.

[A: Now suppose that Robert signed a contract with his employer stating that he is an independent contractor and not an employee.]

[B: No additional information].

For tax and employment purposes, is it correct for Big Box Warehouse to classify Robert as an employee or as an independent contractor of the company?

- *Employee*
- *Independent Contractor*

Under any type of employment classification test, Robert would be classified as an employee. Even the common-law test that is most likely to find workers as independent contractors would recognize that Robert has little control over his work performing manual labor at his managers' discretion at Big Box Warehouse. As such, Robert should be classified as an employee. Half of respondents saw a variation where Robert's contract contains a clause stating he is an independent contractor and not an employee. While such a contractual term can serve as a factor for classifying a worker as an independent contractor, this term alone usually will not change the outcome of the analysis. For a finding that a worker is an independent contractor, many courts require evidence of the independent contracting relationship both in contract and in fact (Deknatel & Hoff-Downing 2015), and without control over any part of his job, Robert is an employee in fact.

Employee Classification Question 2: Ron's Classification based on ABC Factors

The last question asks about employee classification of a worker at an automotive repair shop. This question uses variations to investigate the extent to which people consider the three

"ABC" factors when evaluating a worker's classification status. These factors come from the ABC test, an increasingly popular legal test for employee classification that only recognizes a worker as an independent contractor if all three factors are met. The ABC factors are: A) the worker is free from control and direction of the hirer in connection with the performance of the work; B) the worker performs work outside the usual course of the hirer's business; and C) the worker is customarily engaged in an independently established trade, occupation, or business of the same nature as the work performed.

Ron works for an automotive repair shop.

[A, B, C, D]: Ron's primary work at the repair shop is repairing cars and small trucks.
[E, F, G, H]: Ron's primary work for the repair shop is marketing to increase the shop's business.

[A, C, E, G]: Ron's manager decides which jobs Ron does and how Ron should complete them.
[B, D, F, H]: Ron decides which jobs he does and how he should complete them.

[A, B]: Ron does not have any other mechanic jobs on the side.
[C, D]: Ron runs a mechanic business on the side where he performs similar work.
[E, F]: Ron does not have any other marketing jobs on the side.
[G, H]: Ron runs a marketing business on the side where he performs similar work.

For tax and employment purposes, is it correct for the owner of the repair shop to classify Ron as an employee or as an independent contractor of the repair shop?

- *Employee*
- *Independent Contractor*

This question has eight variations, each representing a different permutation of the three ABC factors. Respondents are told that either Ron or his manager decides the jobs that Ron does and how Ron should complete them. This establishes the first factor—how much control Ron has over the performance of his work. To test the usual course of business factor, one variation states that Ron's primary work is either repairing cars and small trucks—tasks clearly in the usual course of business for an auto repair shop—or Ron does marketing for the shop. Lastly, to test

the independently established business factor, Ron either runs a similar, small business on the side or he does not. These permutations of the ABC factors can reveal to what extent respondents consider these factors in determining Ron's employee classification. Under the ABC test, Ron would only be considered an independent contractor in the last variation, where Ron meets all three factors.

IV. SURVEY RESULTS

This section reports how respondents performed on each of the above questions, before turning in the next section to discuss implications.

A. Overtime Pay Results

Results of Overtime Question 1: Robert's Overtime Status by Pay Level and Pay Schedule

Table 2: Robert's Overtime Status by Pay Schedule

Robert works at Big Box Warehouse. Robert fills packages with supplies and loads them onto trucks, and he completes any other tasks his managers ask him to do.

Robert is paid ***[$10 per hour / $20 per hour / an annual salary of $20,000 / an annual salary of $40,000]*** *and usually works 40 hours each week. The last few weeks have been busy at work, and Robert has worked 45 hours per week.*

Is Robert legally entitled to overtime payments for his work beyond 40 hours per week?

Respondent characteristics	Percent who correctly said Robert is legally entitled to overtime pay, by pay schedule		Difference
	Robert is paid hourly	Robert is paid a salary	
All respondents	94.0	89.2	4.8***
No college degree	95.2	82.4	12.8***
Does not receive overtime	92.2	82.0	10.2***
Hourly worker	96.0	90.0	6.0***
Earns <$30,000 per year	91.3	89.1	2.2
Never worked as an independent contractor	92.1	83.3	8.8***

Notes: The last column reports the statistical significance of the difference between respondents who saw the hourly pay variation and respondents who saw the salaried variation. Statistically significant differences at 1% level (***), 5% level (**), 10% level (*).

Table 2 reports the percent of respondents who correctly identified that Robert is legally entitled to receive overtime payments. Overall, 91.6% of respondents answered correctly. This question was relatively basic, without significant complications. Such a high correct response rate suggests respondents were paying attention. But the salary variation did confuse some respondents. Among the half of respondents who were told Robert was paid an hourly rate, the correct response rate was 94.0%, compared with 89.2% for those who were told Robert was paid a salary. This 5.2 percentage point difference is statistically significant at the 1% level.

When breaking down the results by respondent characteristics, the difference between these variations is largest for those without college degrees, those who do not currently receive overtime, and those who have never worked as an independent contractor. These groups all have some type of information gap, either from a lack of college education or a lack of relevant employment experience.

Table 3: Robert's Overtime Status by Pay Level

Respondent characteristics	**Percent who correctly said Robert is legally entitled to overtime pay, by pay level**		**Difference**
	Robert is paid $10/hr or $20,000/yr	**Robert is paid $20/hr or $40,000/yr**	
All respondents	91.4	91.8	-0.4
No college degree	88.8	88.8	0.0
Does not receive overtime	87.7	86.5	1.2
Hourly worker	93.2	92.8	0.4
Earns <$30,000 per year	90.3	90.1	0.2
Never worked as an independent contractor	87.3	87.9	0.6

Notes: The last column reports the statistical significance of the difference between respondents who saw the hourly pay variation and respondents who saw the salaried variation. None of the differences are significant at the 10% level.

Table 3 shows that there was no statistically significant difference in the percentage of respondents who answered correctly between the lower paying and higher paying scenarios. In reality, Robert's legal right to overtime payments in his scenario does not depend on his pay

level; however, pay levels do play roles in overtime law, including the salary threshold of $35,568 for the EAP exemptions. Respondents did not differ their answers based on the scenario's pay level, even though the $40,000 scenario explicitly is higher than the current federal salary threshold for EAP exemptions.

Tables 2 and 3 reflect that respondents understand quite well that a worker like Robert is legally entitled to overtime payments for working beyond 40 hours in a workweek. Still, for some respondents, there is some confusion on whether a salaried worker should get overtime payments. This 5-percentage point decline in the correct answer seen in Table 2 for the salary variations is small when considering all respondents, but the decline more than doubles in magnitude when focusing on respondents without a college degree or with less experience with overtime.

Results of Overtime Question 2: Justin's Amount of, and Reason for, Overtime Hours

Table 4 shows the percent of respondents who correctly identified that Justin is legally entitled to overtime payments for his work beyond 40 hours per week. Here, too, respondents answered this relatively basic question correctly more than 90% of the time.

Table 4: Justin's Overtime Status by Reason for Overtime Hours

Justin is Robert's coworker at Big Box Warehouse and does the same job as Robert, packaging supplies and loading them onto trucks. Justin is paid an hourly wage of $15 per hour. The past few weeks Justin has worked ***[A, C, E: 42 / B, D, F: 50]*** *hours per week.*

[A, B]: The reason Justin has worked [A: 42 / B: 50] hours is because he cannot complete all the tasks his manager gives him in 40 hours. Justin works more slowly than other employees, who can complete their assigned tasks in 40 hours. Justin's manager knows that Justin is working more than 40 hours per week.

[C, D]: The reason Justin has worked [C: 42 / D: 50] hours is because he cannot complete all the tasks his manager gives him in 40 hours. Justin's manager knows that Justin is working more than 40 hours per week.

[E, F]: Justin's manager knows that Justin is working more than 40 hours per week.

Is Justin legally entitled to overtime payments for his work beyond 40 hours per week? • *Yes* • *No*				
Respondent characteristics	**Percent who correctly said Justin is legally entitled to overtime pay, by reason for Justin's overtime**			**Statistically Significant Difference**
	Justin is a slow worker	**Manager gave too much work**	**No reason given**	
All respondents	88.1	92.9	94.3	***
No college degree	87.7	93.8	97.4	***
Does not receive overtime	86.4	93.1	94.6	***
Hourly worker	91.3	95.5	94.6	*
Earns <$30,000 per year	86.3	92.5	92.7	***
Never worked as an independent contractor	80.4	88.6	93.1	***
Notes: The last column reports the statistical significance of the difference between respondents who saw the "slow worker" variation and respondents who saw either the "no reason given" variation or the "too much work" variation. Statistically significant differences at 1% level (***), 5% level (**), 10% level (*).				

The table is broken down by reasons for Justin's overtime hours, but ultimately these reasons, or lack of a reason, do not matter for overtime law. However, fewer respondents who saw the "slow worker" variation recognized Justin's legal right to overtime. Compared to the other two variations, the "slow worker" variation was different at the 1% statistical significance level across all respondents. This difference is larger for respondents who reported they have never worked as an independent contractor. While even 88.1% of respondents who saw the "slow worker" variation identified Justin's right to overtime pay, the statistical significance shows that some respondents are influenced by the reason for a worker's overtime hours.

Table 5: Justin's Overtime Status by Amount of Overtime Hours

Respondent characteristics	Percent who correctly said Justin is legally entitled to overtime pay, by hours worked		Difference
	Justin worked 50 Hours	Justin worked 42 Hours	
All respondents	92.7	90.9	1.8*
No college degree	95.3	90.3	5.0*
Does not receive overtime	92.5	90.2	2.3
Hourly worker	95.6	92.0	3.6*
Earns <$30,000 per year	93.7	87.9	5.8***
Never worked as an independent contractor	88.8	86.0	2.8

Notes: The last column reports the statistical significance of the difference between respondents who saw the 42-hour variation and respondents who saw the 50-hour variation. Statistically significant differences at 1% level (***), 5% level (**), 10% level (*).

Table 5 shows a slight increase in the percentage of respondents who said Justin was legally entitled to overtime pay when he worked 50 hours compared to 42 hours. While 92.7% said he was legally entitled to overtime pay for his 50-hour workweeks, 90.9% said so when told Justin worked 42 hours in the past few weeks when looking at all respondents. This 1.8% difference is statistically significant at the 10% level. Again, this difference grows for non-college educated respondents.

Tables 4 and 5 highlight two factors—reasons for overtime hours and amount of overtime hours—that are salient to some respondents, despite their irrelevance for the legal analysis on right to overtime pay. However, these tables show that both factors matter a small, but statistically significant, amount. These small effects can and do overlap. Of all six variations of this question, the variation with the lowest rate of correct responses was where respondents saw the "slow worker" worked 42 hours per week. It is possible that survey respondents believed slow workers were less deserving of legal rights to overtime, and workers who work 42 hours per week are also less deserving. While this survey did not measure respondent attitudes for why

a certain answer was selected, previous research on objective knowledge of the law shows that people often think the law is whatever is most fair (Kim 1999; Wilkinson-Ryan 2017).

Results of Overtime Question 3: Justin's Overtime under the Company Policy

Table 6: Justin's Overtime Status by Location of Company Policy

Now suppose Big Box Warehouse has a company policy that

[A, C]: work beyond 40 hours must be approved by a manager first.
[B, D]: it does not pay higher wages for work beyond 40 hours.

[A, B]: This policy is in Justin's contract, which he signed.
[C, D]: This policy is written in the employee handbook.

Justin forgot about this policy, and he worked 50 hours last week.

Is Justin legally entitled to overtime payments for his work beyond 40 hours last week?

- *Yes*
- *No*

	Percent who correctly said Justin is legally entitled to overtime pay, by whether the term was in his contract or his employee handbook		**Difference**
Respondent characteristics	**Handbook Term**	**Contract Term**	
All respondents	78.8	78.2	0.6
No college degree	68.6	67.7	0.9
Does not receive overtime	72.3	73.8	-1.5
Hourly worker	79.3	75.6	3.7
Earns <$30,000 per year	75.4	78.9	-3.5
Never worked as an independent contractor	65.8	67.1	-1.3

Notes: The last column reports the statistical significance of the difference between respondents who saw the contract variation and respondents who saw the handbook variation. None of the differences are statistically significant at the 10% level.

This next question proved trickier for respondents, as seen by the lower correct response rates in Tables 6 and 7. The correct response did not depend on the company's policy, or where the policy is located, or whether Justin forgot about the policy. Because Justin is a covered, non-exempt employee who worked more than 40 hours in a workweek, he is legally entitled to overtime pay. Table 6 shows that respondents did not answer differently if the policy was in Justin's contract or the employee handbook. This result makes sense because employee

handbooks are common, and courts typically treat employee handbooks as legally binding employment terms.

Table 7: Justin's Overtime Status by Type of Company Policy

Respondent characteristics	Percent who correctly said Justin is legally entitled to overtime (OT), by whether the policy banned OT or required approval for OT		Difference
	OT Approval	OT Ban	
All respondents	78.5	78.5	0.0
No college degree	69.2	67.0	2.2
Does not receive overtime	72.0	74.3	-2.3
Hourly worker	77.6	77.3	0.3
Earns <$30,000 per year	78.0	76.4	1.6
Never worked as an independent contractor	67.4	65.5	1.9

Notes: The last column reports the statistical significance of the difference between respondents who saw the approval variation and respondents who saw the ban variation. None of the differences are statistically significant at the 10% level.

Table 7 shows that there was also no difference in response rates if the company required managerial approval to work overtime, or if the company simply refused to pay overtime. This latter case is illegal, while overtime approval is a commonly used, legal strategy for employers to keep labor costs down. These results are striking for their complete lack of difference in respondent perceptions between the legal and illegal company overtime policies. These results suggest a company may reduce workers' beliefs about their right to overtime payments via an overtime approval policy as effectively as if they simply told their workers they weren't paying overtime at all.

Tables 6 and 7 see lower response rates for overtime payments than previous overtime questions, in part because this question was harder. For example, the first overtime question with Robert had no conflict between the worker and the company, and Robert was not at fault in any way. Here, respondents may have penalized Justin for forgetting the company's overtime policy. Introducing conflict with Justin's employer may also cause respondents to consider the employer

perspective as to why Justin should not receive overtime payments. Another reason this question was harder is that respondents had to consider how wage and hour law interacts with a private company's policy. Finally, the company can still punish Justin for failing to follow a company policy, despite Justin's legal right to overtime. Ultimately, the policy doesn't change the answer, but the policy introduces yet another way for respondents to be confused about the law. This confusion is meaningful, as seen in the correct response rates in the 60s and 70s in Tables 6 and 7 compared to the 80s and 90s in the first two overtime questions.

Results of Overtime Question 4: Sarah's Overtime Status by Duty Level and Pay Schedule

The previous examples all feature workers who do not qualify for any of the EAP exemptions because their primary duty is manual labor and nothing related to executive, administrative, or professional duties. But classifying a worker's primary duty for the EAP exemptions is a commonly litigated part of overtime law. The following question tests respondents on the executive exemption by varying the duty level of an employee, as either low, medium, or high duty level. Additionally, the question varies the pay schedule as either hourly or salaried.

Table 8: Sarah's Overtime Status by Duty Level

[A/B: Sarah is an Assistant Manager at Big Box warehouse. While she sometimes supervises other workers, she does not have the power to hire or fire workers. She spends most of her time at work packaging boxes for delivery.
C/D: Sarah is an Assistant Manager at Big Box warehouse. While she sometimes packages boxes for delivery, she spends most of her time at work managing several workers on the production floor, and reporting to the Senior Manager. Sarah doesn't directly hire or fire workers, but her input is taken seriously.
E/F: Sarah is an Assistant Manager at Big Box Warehouse. While she sometimes supervises workers, she spends most of her time at work making long-term strategy decisions for the company. She never packages boxes for delivery, and she is often in charge of hiring or firing workers.]

*Sarah is paid **[A/C/E: $20 per hour; B/D/F: a $40,000 annual salary]** and often works 50-hour weeks.*

Is Sarah legally entitled to overtime payments for her work beyond 40 hours in a week?

- *Yes*
- *No*

Respondent characteristics	Percent who said Sarah is legally entitled to overtime pay, by Sarah's duty level			Difference Between Low Duty and High Duty Variations
	Low Duty Level	Middle Duty Level	High Duty Level	
All respondents	86.0	83.3	84.3	1.7
No college degree	79.2	75.9	78.3	0.9
Does not receive overtime	82.8	76.0	77.2	5.6*
Hourly worker	85.1	80.8	85.8	-0.7
Earns <$30,000 per year	82.6	83.5	83.1	-0.5
Never worked as an independent contractor	81.0	73.1	78.5	2.5

Notes: The last column reports the statistical significance of the difference between respondents who saw the low duty level variation and respondents who saw either the medium duty level or high duty level variation. Statistically significant differences at 1% level (***), 5% level (**), 10% level (*).

Table 8 shows that there was no statistically significant difference for perceptions of a right to overtime pay based on Sarah's duty level. A couple of demographic groups had significant differences, but even these differences are small in magnitude. Overall, regardless of whether Sarah is an assistant manager who still packages boxes and can't hire or fire workers—or whether she is an assistant manager who makes long-term strategy decisions and often hires and fires workers—respondents believe she has a legal right to overtime pay a little more than 80% of the time. This distinction matters because in the high duty variation, Sarah's primary duty qualifies as managing the enterprise to satisfy the legal test for the executive exemption. In the one variation where Sarah has a high duty level and is paid a salary, the other requirements

for the executive exemption are clearly met: Sarah is paid on a salary basis, Sarah is paid above the salary threshold of $35,568, Sarah manages several workers, and Sarah often hires and fires people. Yet despite Sarah being exempt from the FLSA in that one variation, respondents did not differ their responses based on Sarah's duty level. This finding underscores that respondents are unaware of the relatively opaque primary duty tests for overtime exemptions.

Table 9: Sarah's Overtime Status by Duty Level and Pay Schedule

Respondent characteristics	**Percent who said Sarah is legally entitled to overtime pay, by Sarah's duty level and pay schedule**					
	Low Duty Level		**Middle Duty Level**		**High Duty Level**	
	Hourly	*Salary*	*Hourly*	*Salary*	*Hourly*	*Salary*
All respondents	90.6	81.3***	89.0	77.6***	89.1	79.5***
No college degree	95.0	63.3***	83.3	69.0*	93.2	63.9***
Does not receive overtime	93.7	70.4***	85.1	66.8***	86.5	67.9***
Hourly worker	92.9	80.0***	91.4	71.0***	94.4	76.7***
Earns <$30,000 per year	88.5	76.9**	86.8	80.5	87.7	77.7**
Never worked as an independent contractor	89.1	72.9***	83.9	62.4***	82.2	75.0*

Notes: Each salary column reports the statistical significance of the difference between the hourly and salary variations within that duty level. Statistically significant differences at 1% level (***), 5% level (**), 10% level (*).

This question also varied whether Sarah was paid hourly or via a salary, and Table 9 shows that this distinction mattered much more to respondents. Across all duty levels, respondents recognized Sarah's right to overtime pay more frequently when she was paid hourly rather than via a salary. As explained above, this distinction should matter for the high duty level, and may possibly matter for the middle duty level. Because we see the same pattern of disfavoring overtime for salaried workers in the low duty level too, Table 9 suggests this pay schedule distinction is driving the differences, and not the duty level of the worker.

B. Minimum Wage Results

Results of Minimum Wage Questions 1 and 2: Federal and Local Minimum Wages

After answering the experimental vignette study questions described above, all respondents were asked to state the federal minimum wage and the local minimum wage in the location where they work. I then compared their answers to the actual minimum wage that binds employers in the state and city where a respondent worked.

Figure 1: Federal Minimum Wage Guesses

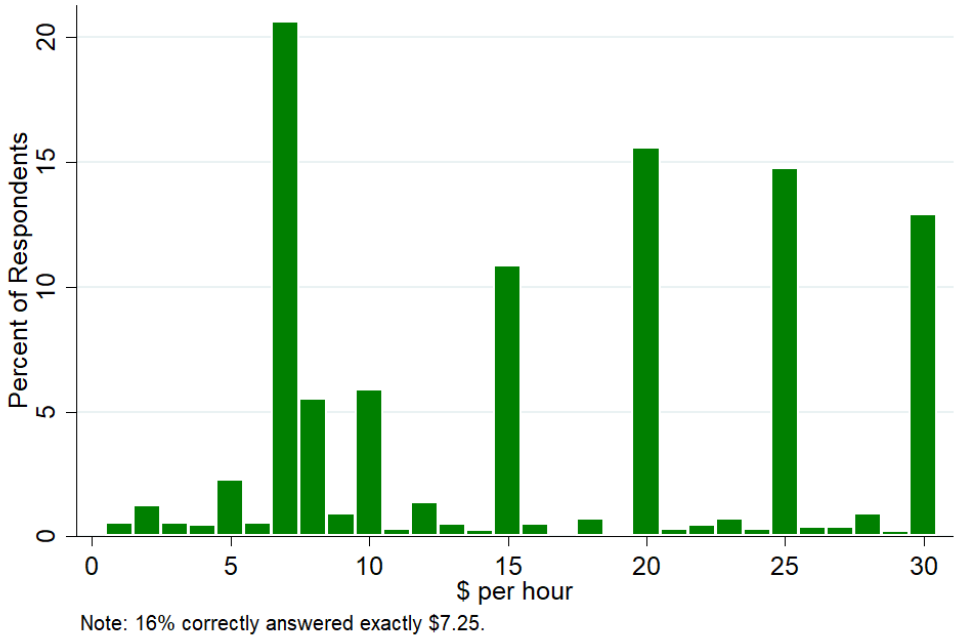

Figure 1 provides the distribution of federal minimum wage guesses in $1 bins from $1 to $30, the allowable range of answers.[33] The modal bin is the bin between $6.50 and $7.50, containing the 16% of respondents who correctly answered that the federal minimum wage is

[33] Other than the first and last bin, the 30 bins are centered around each round dollar value: [$1, 1.50), [$1.50, $2.50) . . . [$28.50, $29.50) and [$29.50, $30].

$7.25 per hour. However, Figure 1 also has clear bunching on $5 increments, including over 15% who guessed $20 per hour, and another 13% who guessed $30 per hour.

Table 10 provides the median and mean federal minimum wage guess by respondent demographics, as well as the group's sample size. The median respondent stated that the federal minimum wage was $15 per hour, more than twice the actual value of $7.25. The mean value was even higher, at $16.53.

Table 10: Federal Minimum Wage Guesses

Respondent Characteristics	Federal Minimum Wage Guess ($)		Sample Size
	Median	Mean	
All	15	16.53	3,018
No college degree	9	13.40	377
Bachelor's degree	20	17.41	2,059
Graduate degree	15	15.47	582
Paid hourly	15	15.99	612
Earns <$30,000 per year	15	15.89	714
Works in a state with a state minimum wage of $7.25	16	16.68	1,326
Works in a state with a state minimum wage of $12 or more	20	17.52	1,078
Hourly + Earns <$30,000 per year + State minimum wage of $7.25	8	12.96	67

These minimum wage questions stand out from others in the survey since respondents in groups with more education or more relevant experience did not perform better on this question. Unlike most other questions in this survey, respondents without a college degree performed better than those with bachelors or graduate degrees. Respondents in states where the federal minimum wage of $7.25 is binding had a higher median and mean guess than for all respondents, though not as high as those in states with a state minimum wage above $12. The group in this sample who should most likely be aware of the federal minimum wage are the 67 hourly, low-wage workers who work in states where the federal minimum wage is binding. While their median guess of $8 is close, their mean guess is nearly $13.

Considering that some respondents stated the federal minimum wage was $1 per hour, and over 13% of respondents stated $30 per hour, there is the chance that mTurk respondents are not taking this question seriously, either because they are rushing through questions or intentionally providing wrong answers. But there are at least two reasons that negate these concerns. First, dropping the 10% of fastest and/or slowest respondents who took this survey does not meaningfully change the results in Table 9, or any other results in this analysis. Second, dropping the respondents who stated the federal minimum wage was $1 or $30 necessarily lowers the median and mean guesses in Table 9, but not so much as to make any demographic group have a median or mean guess of $7.25. Further, these respondents performed better than average on other questions, with 6.71 correct answers compared to 6.33 for all respondents. This difference is statistically significant at the 1% level. This suggests that these respondents providing implausible federal minimum wage guesses are not looking answers up online, are taking the rest of the survey seriously, and know more about wage and hour rights than the average respondent.

Table 11: Local Minimum Wage Guesses

Respondent Characteristics	Within $1 of local minimum wage	Sample Size
All	16.3%	2,938
No college degree	36.0%	336
Bachelor's degree	13.2%	2,032
Graduate degree	15.8%	570
Paid hourly	19.3%	602
Earns <$30,000 per year	17.9%	714
Never worked as a contractor	23.4%	1,112
Receives overtime	12.6%	1,041
Receives tips	9.4%	827
Works in a state with a state minimum wage of $7.25	17.6%	1,326
Works in a state with a state minimum wage of $12 or more	12.9%	1,096
Works in a locality with a different minimum wage than the state minimum wage	9.7%	759

Notes: The difference between a respondent's guess and that respondent's correct local minimum wage accounts for all state and local minimum wages. Minimum wages reflect the rate as of the date respondents took the survey, July 14, 2022. All state and local minimum wages sourced from the Economic Policy Institute's Minimum Wage Tracker: https://www.epi.org/minimum-wage-tracker/.

Table 11 reports results on local minimum wages. Because of many state and local minimum wages are indexed to inflation, and thus are not round dollar values, instead of reporting percent correct, Table 11 provides the percent of respondents within $1 of their local minimum wage.

Only 16.3% of respondents provided a local minimum wage within $1 of the true local minimum wage where they work. Similar to the question on federal minimum wages, those without college degrees were most likely to give an accurate response. Hourly workers, those who have never worked as an independent contractor, and those who work in states with a state minimum wage equivalent to the federal minimum wage all did better than average. Respondents who worked in areas with a different minimum wage than their state minimum wage did worse

than average, with only 9.7% within a dollar of their true local minimum wage. This suggests that people may not know the local minimum wage when a local ordinance is binding.

There may be several reasons for why most of the public cannot name the value of the federal or local minimum wage. It is possible that media narratives over the past decade, especially pushes to raise minimum wages, have anchored certain dollar amounts into people's perceptions. For example, the $15 median guess on the federal minimum wage could be due in part to the "Fight for $15" labor movement that aims to raise the federal minimum wage to $15 per hour. Fight for $15 has been associated with many strikes and protests by low-wage workers in the past decade, and the resulting publicity could have anchored that dollar value in people's minds. But the more likely reason is that the federal minimum wage simply does not impact many people. According to the Bureau of Labor Statistics' Report on the Characteristics of Minimum Wage Workers, 6.0% of all hourly workers reported an hourly wage at or below the federal minimum wage in 2010, the first full year since the minimum wage hike in July 2009. Every year since 2010, as the nominal value of the minimum wage has remained stagnant, the percentage of workers earning at or below the minimum wage has declined. The BLS reports the 2021 value of 1.4% of all hourly workers earning at or below the minimum wage. (Bureau of Labor Statistics 2022).

These two questions on the federal and local minimum wages suggest that minimum wages are poorly known by most people. These major inaccuracies matter because voters either have a direct say on minimum wage increases, or an indirect say through legislators who vote on minimum wage increases. If only 16% of the population knows the actual minimum wage—and more than half of the population thinks the federal minimum wage is more than twice its true value—then setting a socially desirable minimum wage becomes far more difficult. If

constituents believe the binding minimum wage to be higher than its actual present value, then they will not express their concerns sufficiently to—or vote appropriately for—their respective legislators.

There are important aspects of minimum wage rights other than its value. Another important aspect is deciding who has the right to a minimum wage, and if so, which wage. For example, workers who earn tips are usually subject instead to a subminimum wage. For the other questions on minimum wages, this survey used experimental vignettes.

Results of Minimum Wage Question 3: Erik or Pedro's FLSA Rights by Immigration Status

Table 12: Minimum Wage Rights by Immigration Status

[A, B, C, D: Erik / E, F, G, H: Pedro]

_____ works as a cook in a diner. He makes food for customers and follows orders from the head cook.

[A, E: _____ was born in the United States and is a U.S. Citizen.
B, F: _____ immigrated to the United States and was naturalized several years ago, meaning he is now a U.S. citizen.
C, G: _____ is an immigrant, with documentation, but he is not a citizen of the United States.
D, H: _____ is an undocumented immigrant.]

_____ is paid an hourly wage of $6 an hour and usually works 50 hours per week.

Is _____ legally entitled to earn a minimum wage of greater than $6 per hour?

- *Yes*
- *No*

Respondent characteristics	Percent who correctly said the worker is entitled to a minimum wage, by the worker's citizenship status				Difference for undocumented immigrants vs. other groups
	U.S. Born	Naturalized Citizen	Documented Immigrant	Undocumented Immigrant	
All respondents	94.5	93.4	91.5	83.6	***
No college degree	89.5	96.7	86.3	66.7	***
Does not receive overtime	93.4	94.9	91.8	77.6	***
Hourly worker	94.0	97.2	90.7	82.2	***
Earns <$30,000 per year	91.3	93.8	91.7	80.0	***
Never worked as an independent contractor	88.8	90.2	86.7	76.2	***
Hispanic	94.7	96.3	94.3	88.7	***

Notes: Statistically significant differences at 1% level (***), 5% level (**), 10% level (*).

Table 12 reports the percent of respondents who correctly said the diner cook is legally entitled to a minimum wage, by the worker's citizenship status. Respondents were much less likely to answer that the undocumented worker was legally entitled to a minimum wage compared to the other three groups. Although the FLSA applies to all workers equally, regardless of immigration status, one-third of respondents without a college degree incorrectly said the undocumented immigrant was not entitled to a minimum wage. All other demographic groups similarly struggled with the applicability of the minimum wage to undocumented workers; however, Hispanic respondents performed best on this question of all demographic groups.

This scenario also contained a similar question asking if the worker was entitled to overtime pay. Because both the minimum wage and overtime pay rights guaranteed by the FLSA are not impacted by immigration status, the diner cook of this scenario is also legally entitled to earn overtime pay. Table 13 reports results for this question of overtime pay, by the diner cook's citizenship or immigration status.

Table 13: Overtime Rights by Immigration Status

Respondent characteristics	Percent who correctly said the worker is entitled to overtime pay, by the worker's citizenship status				Difference for undocumented immigrants vs. other groups
	U.S. Born	Naturalized Citizen	Documented Immigrant	Undocumented Immigrant	
All respondents	93.4	91.4	90.2	82.5	***
No college degree	95.8	97.8	86.3	67.8	***
Does not receive overtime	93.0	89.0	88.1	77.9	***
Hourly worker	94.0	95.8	90.1	84.2	***
Earns <$30,000 per year	92.4	93.2	92.3	76.2	***
Never worked as an independent contractor	92.8	87.3	86.3	73.8	***
Hispanic	91.3	94.1	94.3	90.5	

Notes: The last column reports the statistical significance of the difference between respondents who saw the undocumented immigrant variation and respondents who saw any of the other three variations. Statistically significant differences at 1% level (***), 5% level (**), 10% level (*).

The results are quite like those in Table 12—more than 90% of all respondents believed the US born, naturalized citizen, and documented immigrant to have this FLSA right. Again, uneducated workers performed worse in the undocumented variation. For every group except Hispanic respondents, there is a statistically significant difference at the 1% level comparing respondents who saw the undocumented variation versus all other respondents.

While the diner cook's name was varied to be either Pedro or Erik, there were no statistically significant differences when comparing respondents who saw Pedro versus respondents who saw Erik. This is true across both the minimum wage and overtime questions. This finding held across all demographic groups—including political party, education level, and their intersection—and indicates that the results in Tables 12 and 13 are primarily driven by respondents' misunderstanding of the law, not racial or ethnic bias.

Minimum Wage Question 4: Erik or Pedro's Waiver of FLSA Rights

Each respondent then answered two follow-up questions to this vignette, which supposed the worker had signed a contract waiving his rights to a minimum wage and to overtime pay. Tables 14 and 15 report these results.

Table 14: Minimum Wage Rights by Waiver of Right

*Suppose **[A-D: Erik / E-H: Pedro]** signed a contract when he began working at the diner. The contract says **[A-D: Erik / E-H: Pedro]** will be paid only his hourly wage, and he gives up any legal rights to a minimum wage and overtime payments.*

Is _____ legally entitled to earn a minimum wage of greater than $6 per hour?

- *Yes*
- *No*

Respondent characteristics	Percent who correctly said the worker is entitled to a minimum wage, by whether the contract had a term that waived the right to a minimum wage		Difference
	Contract does not waive right to minimum wage	Contract waives right to minimum wage	
All respondents	90.8	83.7	7.1***
No college degree	84.9	69.8	15.1***
Does not receive overtime	89.2	79.0	10.2***
Hourly worker	91.0	84.5	6.5***
Earns <$30,000 per year	89.1	81.8	7.3***
Never worked as an independent contractor	85.4	74.2	11.2***
Hispanic	93.4	91.2	2.2*

Notes: The last column reports the statistical significance of the difference between the question where the contract did not waive the right to a minimum wage and the follow-up question where the contract explicitly waived the right to a minimum wage. Statistically significant differences at 1% level (***), 5% level (**), 10% level (*).

Table 14 shows that this contractual waiver of the right to a minimum wage significantly decreased respondent's beliefs about the worker's right to a minimum wage. In fact, an employee's right to a minimum wage of at least $7.25 is guaranteed by the FLSA and cannot be waived. The declines in correct responses were largest for workers without a college degree, workers who do not receive overtime, and workers have not worked as an independent contractor. Hispanic workers performed well again, notching a high correct response rate for both questions.

Table 15: Overtime Pay Rights by Waiver of Right

Respondent characteristics	Percent who correctly said the worker is entitled to overtime pay, by whether the contract had a term that waived the right to overtime pay		Difference
	Contract does not waive right to overtime pay	Contract waives right to overtime pay	
All respondents	89.4	80.8	8.6***
No college degree	87.0	68.9	18.1***
Does not receive overtime	86.8	75.1	11.7***
Hourly worker	91.0	80.4	10.6***
Earns <$30,000 per year	88.4	77.5	10.9***
Never worked as an independent contractor	84.9	70.7	14.2***
Hispanic	92.5	89.0	3.5***
Notes: Statistically significant differences at 1% level (***), 5% level (**), 10% level (*).			

Likewise, Table 15 shows that most people recognize the right to overtime pay in this scenario, but contrary contractual language significantly declines perceptions of that right. The differences are slightly larger than in Table 14 but follow a similar demographic pattern. Lower educated workers performed worst with the illegal contractual waiver, and Hispanic workers performed best.

Results of Minimum Wage Question 5: Brett's Tipped Minimum Wage

Table 16: Brett's Tipped Minimum Wage

Brett works full-time as a waiter at the diner and earns tips.

[A, B]: The diner does not pay Brett a base wage.
[C, D]: The diner pays Brett a base wage of $2.50 per hour.

[A, C]: On average, Brett earns $4 in tips per hour.
[B, D]: On average, Brett earns $20 in tips per hour.

Is Brett legally entitled to any additional wage from the diner beyond his tips?

- *Yes*
- *No*

Respondent characteristics	Percent correct, by whether Brett is entitled to a higher wage from the diner		Statistically Significant Difference
	Brett entitled to higher wage	Brett not entitled to higher wage	
All respondents	84.9	19.3	65.6***
Works in a state where the $2.13 federal minimum wage for tipped workers is binding	87.5	17.9	69.6***
No college degree	74.1	36.9	37.2***
Does not receive overtime	80.0	27.8	52.2***
Hourly worker	85.9	23.6	62.3***
Earns <$30,000 per year	84.0	21.3	62.7***
Never worked as an independent contractor	78.9	28.0	50.9***
Tipped workers	90.0	10.4	79.6***

Notes: The last column reports the statistical significance of the difference between respondents who saw the variation where the worker was not legally entitled to a higher base wage and three variations where the worker was legally entitled to a higher base wage, either because the diner was not paying a base wage at all, or because the base wage and the worker's tips did not add up to at least the federal minimum wage of $7.25. Statistically significant differences at 1% level (***), 5% level (**), 10% level (*).

Table 16 reports results from the question on tipped minimum wages. In the three variations where Brett was legally entitled to a higher wage from the diner, 84.9% of all respondents correctly identified his legal right. In the variation where Brett is paid a base wage higher than the federal tipped minimum wage of $2.13 and his tips more than make up the difference to achieve the federal minimum wage of $7.25, Brett is not legally entitled to a higher base wage from the diner, but only 19.3% of respondents recognized this. Of course, many states have tipped minimum wages greater than the federal tipped minimum wage. For example,

California's $15 tipped minimum wage would mean that Brett is legally entitled to a higher base wage from the diner in all four variations. But these results are similar when focusing only on the 1,263 respondents who work in one of the sixteen states where the $2.13 federal minimum wage is still binding, as only 17.9% of these respondents responded that Brett is not entitled to a higher base wage.

Workers who currently earn tips had both the highest rate of correct responses for the first three variations, and, surprisingly, the lowest rate of correct responses for the last variation where Brett is not entitled to a higher wage. This means that regardless of variation, tipped workers were most likely to answer "yes" as to whether the tipped worker was legally entitled to a higher base wage. This perhaps is explained by fairness considerations, with respondents answering what they think the law should be. This would cut against the explanation of better performing respondents having more education or more relevant employment experience.

C. Compensable Time Results

Results of Compensable Time Question 1: Justin's 30 Minutes by Work Activity

Table 17 displays the results from the first question on compensable time. This question had a worker wait 15 minutes before and after work, varied whether the worker was donning and doffing clothing or waiting in line for security screenings, and asked whether these 30 minutes of time were compensable. The Supreme Court's *Busk* decision resolved that waiting in line for security screenings is not compensable time. In all but the most egregious cases for employee plaintiffs, donning and doffing cases are similarly resolved as non-compensable. To that end, Table 17 reports public perceptions of compensable time, rather than correct responses.

Table 17: Justin's Compensable Time by Work Activity

[A]: Because Justin is responsible for packaging hazardous chemicals, Big Box Warehouse requires Justin to wear safety gear, including a protective suit, gloves, and goggles. Big Box Warehouse requires the safety gear to remain on the premises. Every day, Justin spends 15 minutes putting on the safety gear before work and another 15 minutes taking it off after work.

[B]: For safety and theft reasons, Big Box Warehouse requires workers to pass through a security checkpoint before and after they leave work. At the checkpoint, workers pass through a metal detector while security guards check their bags. Every day, Justin spends 15 minutes waiting in line to pass through the checkpoint before work and another 15 minutes waiting in line after work.

Is Justin legally entitled to earn his $15 hourly wage for the 30 minutes he spends ***[A: putting on and taking off safety gear before and after his work / B: waiting in line before and after his work]****?*

- *Yes*
- *No*

Respondent characteristics	Percent who said Justin's daily 30 minutes are compensable, by activity		Difference
	30 Minutes Donning & Doffing	30 Minutes Waiting for Security	
All respondents	84.9	80.8	4.1**
No college degree	81.9	76.0	5.9
Does not receive overtime	79.0	75.6	3.4
Hourly worker	89.6	83.3	6.3
Earns <$30,000 per year	85.0	77.5	7.5*
Never worked as an independent contractor	81.3	68.8	12.5***

Notes: The last column reports the statistical significance of the difference between respondents who saw the waiting for security variation and respondents who saw the donning and doffing variation. Statistically significant differences at 1% level (***), 5% level (**), 10% level (*).

The two key takeaways from Table 17 are that a high rate of respondents in each variation found the activities—waiting for security and donning and doffing—compensable, and there was little difference between the variations. The 4.1 percentage point difference between donning and doffing and waiting for security is statistically significant at the 5% level, though both levels are large in magnitude, especially considering most federal cases find this time not compensable. Respondents who have only ever worked as employees had the biggest spread, perhaps because these workers had the best information about the non-compensability of waiting for security.

Results of Compensable Time Question 2: Justin's Lunch Break

Table 18: Justin's Compensable Time by Lunch Break

Justin gets a one-hour lunch break every day. Most days, Justin eats with coworkers outside. On Wednesdays, it is Justin's turn to answer the phone in the front office during the lunch break. Typically, each Wednesday, Justin answers ***[A: only one phone call, lasting 5 minutes / B: four to five phone calls, which usually takes 40 minutes]****. During the rest of his Wednesday lunch hour, Justin eats and watches T.V.*

Is Justin legally entitled to earn his $15 hourly wage during his lunch break?
#1. Yes, every day of the week
#2. Yes, for the full hour he sits by the phone on Wednesdays
#3. Yes, only for the time on Wednesdays when he answers phone calls
#4. No

	Percent of responses			
Respondent characteristics	**Incorrectly answered #1 – Yes, Every day**	**Correctly answered #2 – Full Hour**	**Incorrectly answered #3 – Only during calls**	**Incorrectly answered #4 – No**
All respondents	29.3	26.5	34.0	10.2
No college degree	23.0	36.6	24.6	15.9
Does not receive overtime	25.9	33.3	30.9	10.0
Hourly worker	29.9	27.7	29.3	13.2
Earns <$30,000 per year	25.3	23.6	38.5	12.6
Never worked as an independent contractor	26.9	23.8	34.4	14.9

Table 18 reports perceptions on the compensability of time spent working during lunch. While "bona fide" lunch breaks are non-compensable, for a lunch break to be "bona fide" the employee must be completely relieved of duties. Because Justin is on call during both the 5-minute variation and the 40-minute variation, he does not have a bona fide lunch break on Wednesdays. For both variations, the correct answer is #2, that Justin is entitled to earn his $15 hourly wage for the full hour he sits by the phone on Wednesdays. Response rates did not vary significantly between the 5-minute variation or the 40-minute variation, so pooled response rates are provided in Table 18.

Table 18 shows that most respondents do not accurately understand the compensability of on call time during lunch hours. Across all respondents, just 26.5% of respondents correctly answered this question. More respondents believed that Justin should be paid every day, even those when is completely relieved from his duties. Hourly workers, who may have more

experience with the compensability of their lunch hours, did not fare much better. The best performing respondents were those without a college education, though even 15.9% of these respondents thought Justin could never be paid for his Wednesday lunch hour.

D. Employee Classification Results

Results of Employee Classification Question 1: Robert's Classification

Table 19: Robert's Classification by Contract Label

[A: Now suppose that Robert signed a contract with his employer stating that he is an independent contractor and not an employee.]

[B: No additional information].

For tax and employment purposes, is it correct for Big Box Warehouse to classify Robert as an employee or as an independent contractor of the company?

- *Employee*
- *Independent Contractor*

Respondent Characteristics	Percent who correctly said Robert is an employee		Difference
	No additional information	Contract labels Robert independent contractor	
All respondents	74.8	52.5	22.3***
No college degree	81.9	43.5	38.4***
Does not receive overtime	77.8	50.9	26.9***
Hourly worker	76.4	47.9	28.5***
Earns <$30,000 per year	73.9	52.2	21.7***
Never worked as an independent contractor	81.3	46.6	34.7***

Notes: Statistically significant differences at 1% level (***), 5% level (**), 10% level (*).

Table 19 reports results from the question on Robert's employee classification. Table 19 shows that about three-quarters of respondents correctly identified Robert as an employee in the variation where the contract term labeling him an independent contractor is not provided. When that independent contractor term is provided, the rate of classifying Robert as an employee drops to about half. The inclusion of the contractual term created a large, statistically significant

decline in finding that Robert was an employee across all groups. Respondents without college degrees and respondents who had never worked as an independent contractor found Robert to be an employee less than half of the time when the contractual term was included. These findings affirm research on the power of unenforceable contractual terms, especially in the employment context.

Results of Employee Classification Question 2: Ron's Classification based on ABC Factors

Table 20: Ron's Classification by ABC Factors

Ron works for an automotive repair shop.

[A, B, C, D]: Ron's primary work at the repair shop is repairing cars and small trucks.
[E, F, G, H]: Ron's primary work for the repair shop is marketing to increase the shop's business.

[A, C, E, G]: Ron's manager decides which jobs Ron does and how Ron should complete them.
[B, D, F, H]: Ron decides which jobs he does and how he should complete them.

[A, B]: Ron does not have any other mechanic jobs on the side.
[C, D]: Ron runs a mechanic business on the side where he performs similar work.
[E, F]: Ron does not have any other marketing jobs on the side.
[G, H]: Ron runs a marketing business on the side where he performs similar work.

For tax and employment purposes, is it correct for the owner of the repair shop to classify Ron as an employee or as an independent contractor of the repair shop?

- *Employee*
- *Independent Contractor*

Respondent characteristics	**Percent who answered "Employee" by the number of ABC Factors**				**Difference between 0 factors and 3 factors**
	0	**1**	**2**	**All 3**	
All respondents	71.6	71.0	63.9	63.7	7.9**
No college degree	75.6	79.5	60.3	52.3	23.3**
Does not receive overtime	75.0	73.2	61.8	58.4	16.6***
Hourly worker	74.3	73.5	62.7	70.7	3.6
Earns <$30,000 per year	72.9	73.8	65.1	64.0	8.9
Never worked as an independent contractor	77.8	72.4	66.8	63.8	14.0***

Notes: The last column reports the statistical significance of the difference between respondents who saw the variation with zero ABC factors and the variation with all three ABC factors. Statistically significant differences at 1% level (***), 5% level (**), 10% level (*).

Table 20 contains the results of the employment classification question about the ABC factors. In the variation where the worker met none of the ABC factors—Ron's manager had control over his work, Ron's work repairing cars is the usual business of the auto shop, and Ron did not do this work outside this job—respondents classified Ron as an employee 71.6% of the time. As variations included more factors, this percentage slightly declined. Having two or three of the ABC factors dropped the percentage of respondents finding Ron was an employee to 63% for a decline of just 7.9 percentage points. While respondents were not expected to abide by the ABC test, or even know about it, the findings suggest that the factors did not play a deciding role for respondents. Even in the presence of all three ABC factors, respondents identified the worker as an employee more often than not.

V. DISCUSSION

With a battery of questions and experimental variations on wage and hour and employee classification topics, what does this survey teach us about the public's perceptions of these employment law topics? First, respondents did very well on simple scenarios, but correct response rates quickly declined with complicating factors. Second, this survey revealed which complicating factors were most difficult for respondents. Third, most of the public does not know what the federal or local minimum wage is. Fourth, and in line with previous research, both a lack of information and notions of fairness likely drive incorrect responses. This section concludes with suggestions for improving worker abilities to name their rights within employment law, and brief considerations of the limits of this survey's approach to measuring worker knowledge.

Strong Performances for Simple Scenarios

Respondents did very well on simple scenarios in which the employee was legally entitled to a right, answering correctly more than 90% of the time. The first two overtime questions and the third minimum wage question are examples of these simple scenarios. Even among respondents without a college degree, 95% correctly answered the first overtime question when Robert was paid hourly. These correct response rates are similar in magnitude to questions in Pauleen Kim's study on the at-will rule when she asked if it was lawful for an employer to terminate an employee for unsatisfactory job performance or for a lack of work (Kim 1997). Kim describes these as "rather obvious" reasons for termination, in part because these reasons are lawful even under a just-cause standard. Arguably, the high rate of correct responses in this survey's scenarios was because the questions were also somewhat obvious—they asked for nothing more than recognitions of basic, well-known, important FLSA rights.

These correct response rates for simple questions on overtime pay and minimum wage rates are remarkable for two reasons. First, prior literature on objective legal knowledge largely shows that people are unaware of what the law is (Rowell 2017; Darley et al. 2001). Wage and hour law may be different due to its salience to workers. For example, entitlement to overtime for over 40 hours of work may be salient to respondents because that right to overtime pay is important to workers' economic security and because, for many workers, overtime pay may occur during each pay period. Second, the prevalence of wage theft and employee misclassification might suggest that workers can name these basic rights, but fail to successfully blame and claim in their own employment situations. Alternatively, workers may fail to name the wage and hour right in their employment situation because their personal circumstances are much more complex than the simple scenarios presented here.

Weaker Performances with Complications

Complicated situations substantially lowered correct response rates. Complications included features of employment that are less salient to workers, waivers of rights, and conflicts of federal law and company policy.

The details of overtime law are clearly less salient to workers. Overtime myths were one of the most common reasons respondents incorrectly answered a question. One apparent myth that many respondents believe is that salaried workers cannot receive overtime pay. Both questions that varied the worker's pay schedule (hourly or salary) revealed a statistically significant decline in the percent of respondents who believed a salaried worker was entitled to overtime. Furthermore, these differences grew when respondents had low levels of education or lacked relevant information, such as receiving overtime pay in their current jobs. Another overtime consideration that respondents did not account for is the employee's primary duty. When asked about a salaried assistant manager's overtime rights, respondents viewed her overtime pay entitlements the same, regardless of her primary duty. Whether she was mostly performing manual labor or making long-term strategy decisions for the company, respondents believed she was entitled to overtime pay more often than not.

Some respondents also seemed to believe that workplace norms should factor into overtime pay rights. Significantly fewer respondents believed that slow workers and workers who worked barely above forty hours were entitled to overtime pay. Both factors had small effects in the third overtime question, but these effects compounded when they were both included.

Corresponding with literature on the importance of contractual terms, respondents were less likely to identify a right after a contract impermissibly waived that right. This effect was

seen in two situations in this survey—when the worker signed a contract waiving their right to a minimum wage, and when the worker signed a contract labeling themselves an independent contractor. Minimum wages are more salient employment law topics than employee classification statuses, and as a result, the contract term had a much larger impact for the employee classification question.

Respondents also failed to correctly identify when a worker's time at work was compensable. Both questions revealed high error rates. While the Supreme Court decided in *Busk* that waiting times for security screenings were non-compensable, 80% of respondents thought otherwise. The magnitude of incorrect responses on compensable time is likely due to a lack of relevant employment experience among respondents, although it may also be driven by fairness norms influencing respondent answers.

Failures to Name Minimum Wages

Of all questions, respondents did the worst on questions related to naming the minimum wage. Only sixteen percent of respondents were able to name the federal minimum wage of $7.25, even though the federal minimum wage has remained at this level since 2009. Similarly, only sixteen percent of respondents were able to guess within $1 of their true local minimum wage. Just eight percent could name both correctly. The median guess for the federal minimum wage was $15, more than twice the true value. This near-total lack of minimum wage knowledge can harm low-wage workers who earn close to the minimum wage if they are unable to identify minimum wage violations at work. For example, in the 2008 Unregulated Work Survey, 25.9% of low-wage workers reported a minimum wage violation in the prior week (Bernhardt et al. 2009). While the overestimates of the minimum wage could suggest that more workers would

raise alarms about minimum wage violations, these overestimates reflect widespread uncertainty, even among hourly and low-wage workers. Such workers who are uncertain about their minimum wage are more likely to be at-risk of minimum wage violations and other forms of wage theft.

Respondents' inability to name the minimum wage also raises concerns of insufficient voter information regarding changes to minimum wages. While most respondents in this survey are paid well above the minimum wage, and naming the minimum wage may not be important to their paycheck, over 80% of respondents identified with a political party and likely vote. Voters who believe the minimum wage is already $15 per hour will likely not exert pressure on lawmakers to raise the minimum wage. Achieving a socially optimal minimum wage becomes much more difficult when most voters have no idea what the minimum wage is.

Fairness Norms and Information

On questions other than naming the minimum wage, respondents were most frequently incorrect when the correct answer was that a worker was *not* legally entitled to a right. This result may reflect the incorporation of fairness norms into respondent answers (Kim 1999; Wilkinson-Ryan 2017). The survey instructed respondents to answer with what they believed the law currently was, not their opinion. Furthermore, each question asked whether the worker was "legally entitled" to a right, or whether it was "correct" to classify a worker as an employee or independent contractor, prompting a factual response. These instructions were included to minimize the reliance on fairness norms, although, in the face of not knowing the answer, respondents may have still relied on those norms. Based on respondent demographic data, better information—either through education or relevant employment experiences—helped respondents

answer correctly on many questions. But better information alone does not explain all the results; in fact, in some instances (such as the minimum wage questions), it seemed to lead respondents astray.

All in all, this survey shows that workers have basic knowledge of their wage and hour rights, and in simple scenarios, they can name those rights. But complicating factors consistently decreased the likelihood that a respondent would answer correctly. In real life employment scenarios, the facts are typically more complicated than the scenarios presented here.

From Knowledge to Protection

Given this inability to name wage and hour rights in complicated employment scenarios, what response is best to protect wage and hour rights? This chapter discusses three approaches, leaving a full analysis of each towards future research.

One straightforward approach to improving knowledge is better educating workers. This strategy could help prevent wage and hour violations from occurring and could begin the process of recovering wages after a violation has happened. However, the FLSA already has many requirements that workplaces must post information to inform workers on many of their rights. All employers subject to the FLSA's minimum wage provisions must post in a readily available place for employees a notice on the FLSA, including the value of the federal minimum wage. As this requirement is aimed to educate nearly every worker in the country, yet only 16% of my sample could correctly state the federal minimum wage, educating workers through mandatory notices seems likely ineffective. Nonprofit worker centers, unions, and government agencies also already host know-your-rights trainings for workers. Doubling down with more resources towards these educational strategies could potentially help, but their impacts on further

protecting rights is not clear. Different methods of regularly educating workers should be experimentally tested to examine the efficacy of alternative strategies. Posters in break rooms, worker seminars, and notices on each paycheck that list important rights and how to file complaints are three separate methods that labor researchers could test. Future research should explore the cost-effectiveness of educating workers on their rights and the resulting impact on wage and hour violations.

A systematic way to better protect wage and hour rights is encouraging wage and hour compliance by employers through higher penalties and strategic enforcement (Weil 2010). Regulators could put greater responsibility on employers to comply with wage and hour law with higher penalties, especially for more illegal, coercive techniques. This survey found that respondents believed the legality of contractual terms even if they were unenforceable. Unenforceable, coercive contract terms could be better deterred through higher penalties and strategic enforcement. Strategic targeting has promising effects for OSHA labor enforcers (Johnson, Levine, Toffel 2022). Results from this survey suggest targeted enforcement of wage and hour rights could yield large groups of workers unaware of their statutory rights. But even stronger, targeted enforcement may not be as effective if workers cannot name the rights in their own employment situation. Strategic enforcement may not properly target the labor sectors that have high rates of violations if those workers do not report labor violations.

Finally, this research shows some areas of wage and hour law are too complicated for many workers. Lowering the complexity of these important rules that govern paychecks is one more option for legislators and regulators. For example, the primary duty test, a key part of overtime pay exemption status, is completely overlooked by workers. This is unsurprising given the complexity of the test. Instead, workers are far more influenced in their determination of

overtime status by whether a worker is salaried. At the same time, the primary duty test is the most difficult part of overtime exemptions for employers and courts to determine because of the factual intensity of the test. The original purpose of the FLSA's overtime requirements was to increase both the quantity and quality of jobs, by forcing employers to spread work among more workers, and reward workers with long workweeks with higher earning jobs.[34] Overtime exemptions sought to separate out which workers these benefits were necessary for, and a 2004 final rule to update these exemptions was seen as largely ineffective in providing clarity towards the distinction of which workers deserve the benefits of overtime and which do not (Crouss 2012). Renewed focus on the original purpose of the FLSA's overtime provisions and of the overtime exemptions is worthwhile considering the confusion generated by the primary duties test. This chapter allows for future research to analyze the necessity of a duties test, but the results of the survey further support the need for clarity.

More research is needed to determine the exact methods for improving worker knowledge, but this chapter identifies several topics within wage and hour law that these methods could target. For example, regularly reminding workers of their rights to overtime pay on each paycheck, or even annually through W-2 forms, might boost worker knowledge on an important topic with which workers struggle—at a relatively low cost to the employer. Future research should examine whether such low-cost approaches could be fruitful for wage and hour regulators.

VI. CONCLUSION

[34] Davis v. J.P. Morgan Chase & Co., 587 F.3d 529, 535 (2d Cir. 2009).

Even if a worker can correctly name a right in the survey questions presented here, the worker may not be able to name the rights entitled to them in their own personal employment experiences. While over 90% of respondents recognized that in a simple, abstract scenario, the fictional worker Robert was entitled to overtime pay, their accuracy may not be as high in real life. The questions in this survey were designed to be representative of common employment problems, but real problems have many more factors at issue for a worker to name their right. Even if they do name their right, they may not be confident in their assessment. This survey does not capture the confidence of respondents in their answers.

Furthermore, with a survey drawing respondents from across the nation, there are many state-specific wage and hour laws and regulations that likely impacted responses. Although I accounted for the local minimum wage, some states differ from federal wage and hour law, for example on salary exemption thresholds for overtime pay. Still, to the extent that this survey did include state-specific variations for local tipped and non-tipped minimum wages, these differences across states did not prove significant. This aligns with previous literature that people do not know unique, state-specific laws (Darley et al. 2001).

Overall, this study shows that in simple scenarios, workers are adept at identify wage and hour rights. Compared to other studies of objective legal knowledge, respondents in this experimental vignette study performed much better in identifying wage and hour rights. But the study also revealed that complicating factors that reduced respondents' accuracy. In line with previous studies on objective legal knowledge, the results in this study suggest that better information and perceptions of fairness both play a role in driving respondent perceptions. Educating workers on these topics may help overcome the first hurdle of naming a right, but greater public and private enforcement of wage and hour laws is needed to effectively protect

wage and hour rights and proper employee classifications. Simplifying some wage and hour laws and regulations to meet workers' perceptions is another potential way for workers to better name their rights. This study identifies topics within employment law where workers struggle to name their rights. By addressing these struggles, legislators and regulators could help workers name those rights, allowing workers to overcome the first step in enforcing their rights.

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CHAPTER 3: THE ADOPTION OF THE ABC TEST ON EMPLOYMENT OUTCOMES IN NEW YORK

I. INTRODUCTION

A central question in labor and employment law is whether a worker is an employee. Employees enjoy many legal protections not granted to other workers, including minimum wages and overtime pay, antidiscrimination, workers' compensation, unemployment insurance, unionization, and employer contributions towards taxes and retirement. Independent contractors, self-employed workers, workers paid "off-the-books," and undocumented workers have far fewer legal rights than employees.

Yet determining employee status for workers has become increasingly difficult for two reasons. First, there are many unclear, post-hoc tests for determining employee status for both tax purposes and labor purposes. Second, many jobs are being restructured such that employees and independent contractors look increasingly alike, and not just in the gig-work economy (Wilking 2022).

This classification problem creates a misclassification problem: employers frequently misclassify their employees as independent contractors. With unclear tests across multiple areas of the law, many misclassifications are accidents. But misclassifying an employee as an independent contractor is financially incentivized for employers through cost savings. These misclassifications are common and costly. Randomized audits of administrative data from unemployment insurance and workers' compensation programs frequently estimate over 10% of workers are misclassified (National Employment Law Project 2020). Misclassified workers lose pay, benefits, and rights; states lose funding for unemployment insurance and workers'

compensation; and both federal and state governments lose billions in income tax revenue annually (Rhinehart et al. 2021).[35]

With huge stakes on the line, states are increasingly regulating worker classification (Deknatel & Hoff-Downing 2015). One common reform is to change the legal test for classifying workers to reduce misclassification. One such state, New York, targeted industries with high rates of misclassified workers by changing the legal test for classifying workers in those industries to the employee-friendly ABC test, described below. These laws also introduced financial incentives—civil and criminal penalties—for firms to properly classify employees. Yet while many states have experimented with new classification tests for some labor laws, there is no empirical study of how changes to worker classifications impact work outcomes. Employers that reclassify independent contractors as employees face greater labor costs, and those employers may let some workers go.

This chapter analyzes how employment and wages in the New York construction and truck transportation industries responded to the new test for employee status. Using the Current Population Survey to measure workforces and wages in these industries and comparator industries, this chapter finds these laws were associated with a 10–15% reduction in the industry's workforce with no significant change in worker wages. Black workers suffered disproportionate job losses in the industries affected by the new law. Although, U.S. Census Bureau data on private residential construction in New York appears to show no clear slowdown in building permits or construction valuation, suggesting the construction industry did not suffer major setbacks due to the law.

[35] While self-employed workers or those classified as contractors or are required to pay both the employee and employer share of taxes, research shows greater tax noncompliance by these workers (GAO 2007).

This chapter proceeds with Section II describing the various problems within worker classification and how states are increasingly regulating these legal tests. Section III provides the methodology and some statistics from the raw data. Section IV reports the main finding of this chapter: the adoption of the ABC test is associated with a decline in the industry's workforce. Section IV considers several robustness checks. Section V discusses this chapter's findings in relation to the identified problems within worker classification.

II. THE (MIS)CLASSIFICATION PROBLEM & STATE REFORMS

A. The Classification Problem

i. Legal Tests

Most federal and state statutes confer more legal rights to employees than to independent contractors. In pre-industrial eras, there was a distinction between "servants," who were under control of masters, and independent contractors. This classification existed for one reason: vicarious liability attached to servants, but not to contractors. When consumers were injured or received faulty goods from subordinate workers, early courts decided classification issues by analyzing a list of factors for how much control or supervision the master had over the worker. Some early courts recognized the inconsistency in applying these factors, but as the only available analysis, this resulting test was enshrined in later Restatements, including the influential Restatement of Agency.

The importance of defining the term employee rose dramatically due to twentieth century legislation (Dubal 2017). While terms such as "laborer," "hireling," "operative," and "servant" were considered, these federal statutes conferred new, powerful rights only to "employees" (Carlson 2001). With employee rights to minimum wages, overtime pay, and collective

bargaining, and employment discrimination protections, these dramatic changes to the responsibilities of employers elevated legal and political fights over employee classification to new heights.

These same fights persist today in part because most federal employment statutes do not meaningfully define which workers are employees. For example, in the Employee Retirement Income Security Act ("ERISA"), the statute at issue in *Nationwide Mut. Ins. Co. v. Darden*, employee is defined as "an individual employed by an employer." The Supreme Court observed that this definition "is completely circular and explains nothing."

The resulting judicially created framework for worker classification is piecemeal—different tests determine different rights. There are three main doctrinal tests, each with variations.[36] These tests do not yield consistent outcomes, and many scholars question whether the tests even could be applied consistently or whether there are meaningful differences between the tests (Dubal 2017).

The first, and most widely used, type of test is the common law control test. This test focuses on the degree of control that the employer has over the worker and is considered the most employer-friendly. The Restatement (Second) of Agency—published by the American Law Institute and one of the leading sources for courts to define employees—lists ten factors for consideration. Some versions of this test, such as the test used by the IRS, have included twenty factors. Among the ten factors in the Restatement are subjective qualities, such as "the skill required in the particular occupation," leading into rigorous factual inquiries. Despite this difficulty, the common law control test is widely used.

[36] Several other tests exist, such as the Restatement of Employment Law, which emphasizes entrepreneurial control of the worker, and the Hybrid test, which merges the first and second categories.

A second category of test for determining employee status is the economic realities test. This is the test used for the Fair Labor Standards Act as well as the Family and Medical Leave Act and aims to consider the economic reality for the worker and employer. Adjudicators determine employee status after analyzing factors that determine the economic dependence of the worker on the hirer. Factors include whether the worker's services are integral to the business, the permanency of the relationship and opportunity for the worker's economic gain or loss. This test is usually more worker friendly than the common law control test.

The third major test for employee status is the ABC test, which forgoes optionally applied factors for three mandatory requirements for an independent contractor. This test presumes the worker is an employee unless requirements A, B, and C are met: A) the worker is free from control and direction of the hirer in connection with the performance of the work; B) the worker performs work outside the usual course of the hirer's business; and C) the worker is customarily engaged in an independently established trade, occupation, or business of the same nature as the work performed. This test is generally considered the most worker friendly, although even this test has variations (Deknatel & Hoff-Downing 2015).

ii. Restructuring of Work

A further reason worker classification has become more difficult is that many work relationships have been restructured, reducing the number of meaningful differences between employees and independent contractors. The rise of the gig economy, also known as the "online platform economy," or O.P.E., has played a part in changing the relationship a worker has with their hirer. Gig work from online platforms like Uber relies on "invisible control" over workers and is an expansion of old business models of franchising and independent contracting (Das Acevedo 2018). While this invisible control may not be a new development, its growing

prevalence in the lives of workers has accelerated the shift away from traditional employment. A 2019 analysis of U.S. tax returns found that the share of workers who received a 1099 tax form, which is required by tax law for independent contractors, grew slightly from 9.9% in 2000 to 11.8% in 2016. More than half of this growth occurred in 2013 to 2016, nearly all of which came from the O.P.E. (Collins et al. 2019).

Outside of the gig economy, traditional employment and independent contracting are becoming harder to distinguish. A 2022 analysis of all U.S. tax returns from 2001 to 2016 found that employees and independent contractors have converged across six proxies of firms' control over workers: income dependence, number of payers, distance to payer, tenure, compensation volatility, and deduction-taking (Wilking 2022). This convergence across measures of behavioral and financial control is pronounced between low-income employees and low-income contractors.

B. The Misclassification Problem

The growing difficulty of worker classification leads to misclassified workers. Misclassification is common, especially in certain industries. One estimate of the construction industry placed the rate of worker misclassification at over 25% (Goodell and Manzo 2021). A randomized audit study of workers' compensation data in Washington found misclassification grew roughly three-fold from 2005 to 2017, from 5% to 16%. (Xu and Erlich 2019). As previously noted, misclassification is costly to workers, employers who comply, state safety nets, and federal income tax systems.

Prior to New York's Construction Industry Fair Play Act in 2010, the New York construction industry had particularly high rates of misclassification. An analysis of unemployment insurance audits in several New York industries found that 14.8% of the state's

construction workforce were likely misclassified as independent contractors from 2002 to 2005 (Donahue et al. 2007). Referring to this study, the state's labor commissioner noted that, based on field experience, the state's labor department believed that misclassification rates were even higher due to the prevalence of off-the-books labor. These off-the-books workers are not formally classified as either employees or independent contractors, and audit data would not identify them. Another reason the Donahue et al. study still may not capture the full extent of classification is that, in 2003, workers' compensation payrolls were found to count only 80% of the unemployment insurance payrolls, even though nearly every New York worker covered by one social program should be covered by both (Parrott 2011).

C. State Reforms to Worker Classification

To combat worker misclassification, some states are turning away from the common-law control test to the ABC test (Shimabukuro 2021; Deknatel & Hoff-Downing 2015). One advantage of the ABC test is that it can offer greater predictability for everyone by providing a clearer determination of employment status.

Near the end of 2010, New York State passed the Construction Industry Fair Play Act.[37] After the New York legislature discovered that nearly one in four construction employees in the state were misclassified or paid off the books, the legislature passed the Act to prevent employee misclassification in the construction industry for wage and hour, workers' compensation, and unemployment insurance purposes. To combat misclassification, the Construction Industry Fair Play Act implemented an ABC test for employee classification of construction workers, including the presumption that workers are employees unless the employer can show the ABC

[37] New York State Construction Industry Fair Play Act, 2010 N.Y. Sess. Laws ch. 418 (McKinney) (codified at N.Y. LABOR LAW §§ 861 to 861-f (McKinney 2010)) (effective Oct. 26, 2010).

test is met. This Act represented the first usage of the ABC test within New York state, which still uses the common law control test for all other work law purposes, including unemployment insurance and workers' compensation. Other features of the Act include civil and criminal liability for willful misclassification, and an anti-retaliation provision to protect workers who complain of misclassification. In 2014, New York passed a similar Fair Play Act for their truck driving industry.

These Fair Play Acts may change employment or wage rates through the adoption of the ABC test coupled with greater penalties for misclassification. Moreover, studying the New York construction and trucking industries should reflect any employment or wage effects for a few reasons. First, the ABC test was a new test within New York, with the rest of the state still using the common law control test. The Fair Play Act should have larger effects compared to other adoptions of the ABC test which have usually only applied to employee classifications in a state's unemployment insurance system, but not for wage and hour laws, workers' compensation, or tax purposes. New York's Fair Play Acts require classifying construction and trucking workers under the ABC test for all purposes. Second, employers and workers should have known about these changes immediately after passage since both Fair Play Acts contain legal requirements to post information at the worksite or face fines up to $1,500 for the first offense and $5,000 for the second offense. These notices have been "so successful in increasing awareness and generating tips" that the state's Department of Labor sought to require further worksite notices about misclassification (Jones 2014).

Third, the New York law contains rather steep penalties and has aggressively enforced these acts from the outset. The state maintained various task forces aimed at addressing misclassification more broadly. The civil fines for willful violations are $2,500 per misclassified

employee on the employer's first violation, and $5,000 per misclassified employee on the second violation. New York's Joint Enforcement Task Force on employee misclassification has relied on these fines for their enforcement. In 2012, enforcement sweeps and investigations of construction sites by this task force led to the discovery of $15.8 million in unreported wages, and the identification of over 1,700 misclassified construction workers, with associated penalties (New York State Department of Labor 2013). Misdemeanor prosecutions are also allowed, with up to a 30-day sentence and debarment from public works contracts for one year for the first violation and a 60-day sentence and five-year debarment from public works for the second violation, though it's not clear whether these criminal sanctions have been enforced. Finally, these two industries, construction and trucking, were targeted for their high rates of misclassification. The effect of the Fair Play Laws—the implementation of the ABC test and the accompanying enforcement—should be strongest in these industries where misclassification is most prevalent.

D. Financial Incentives of Worker Classifications

In theory, financial incentives should motivate behavioral changes, including for worker classification. For example, as employees become Medicare-eligible at age sixty-five, firms with more than twenty full-time employees have an opportunity to shift healthcare costs onto Medicare by reclassifying those workers as independent contractors. Wilking (2022) studies this difference between firms with more than twenty employees and fewer than twenty employees and finds that when the relative costs of retaining an employee rises, so does the likelihood that the firm reclassifies an existing employee as a contractor. In addition to employers, workers also respond to financial incentives in self-classification and self-reporting tax data. Garin et al.

(2022) uses IRS administrative data to show that low-earning workers will report additional self-employment earnings to take greater advantage of the Earned Income Tax Credits.

Employment and wage levels may respond to these penalties in a few ways. Employers on the margin reclassifying contractors as employees will likely face greater compliance costs, including paying taxes and benefits for their new employees. Labor demand may decline if employers hire fewer employees or reduce wages to compensate for these new compliance costs. On the other hand, labor supply may increase because workers may be more incentivized to enter the labor market or work for more construction sites knowing they have greater protection against misclassification. These effects on labor supply and labor demand will have ambiguous effects on wage rates too.

In addition to competing supply and demand effects on labor force participation and corresponding wage changes, competing supply and demand effects may shift labor force participants away from contracting and towards employment. For example, the purpose of the New York construction law was not to lower employment but to reduce misclassification through civil and criminal penalties and greater enforcement. As such, independent contractors or self-employed workers in construction may decline, as they are reclassified as employees. Understanding these shifts can help uncover how a switch in legal tests alters labor markets.

III. EMPIRICAL METHODOLOGY

I study the effects of employment classification changes by analyzing the Current Population Survey's Outgoing Rotation Group ("CPS-ORG"). The Current Population Survey ("CPS") is a public, widely used dataset that reports a monthly survey of over 60,000 U.S. households and is used to determine the nation's unemployment rate, among other economic and

social measures. The CPS tracks the labor market outcomes of the respondents over time by surveying them for four months, then re-surveying the same respondents the next year over the same four months, although for purposes of this chapter I do not use the short longitudinal features of the CPS. In the final month before the respondent pauses or exits the survey, the survey asks the respondent more detailed questions about their employment and wages. These "outgoing" respondents, who provide more detailed labor market information, form the CPS-ORG. I use non-imputed data from the CPS-ORG.

Arguably, the CPS-ORG is the best publicly available dataset for studying changes to employment, its composition, and wage rates due to its size, monthly frequency, and extensive use. The National Longitudinal Survey of Youth also captures labor market outcomes over time, but its smaller sample size limits the ability to study effects at an industry-state level. While the Census' American Community Survey reports labor market outcomes and is larger than the CPS, its annual frequency makes the CPS-ORG preferable.

To investigate how employment classification changes with legal standards, I would ideally compare the amount of misclassification occurring before and after legal changes. But the monthly CPS does not ask workers about their classification as an employee or an independent contractor, let alone attempt to measure whether workers are misclassified. The only classification the CPS asks about is whether workers are self-employed.

The CPS simply asks respondents if they worked last week. This survey question is helpful for this research question because, unlike employment data from unemployment insurance, the CPS can capture workers who are independent contractors and even those who

work off-the-books.[38] As such, using the CPS will reveal the New York law's combined effect on all types of workers, not just employees.

To analyze the effect of this law on labor force participation and wages, I will measure workforces and wages within the construction and trucking industries before and after the law and compare those measures to employment and wages within other industries in New York in the same period. Ideally, the comparator industries should be similar to the construction industry in terms of worker characteristics and concerns over misclassification, with the exception that they do not fall under the new law's ABC test and enhanced enforcement scheme.

In 2016, New York merged task forces to create a Joint Task Force on Employee Misclassification and Worker Exploitation. This Joint Task Force identified 14 industries that it has focused its efforts on: airports; car washes; childcare; cleaning; construction; farming; home healthcare; janitorial services; landscaping / day laborers; laundry; nail salons; restaurants; trucking and waste disposal; retail; and supermarkets. Not only do these industries represent strong potential comparators to New York's construction and trucking industry because they triggered similar legislative concerns about misclassification, but also their employee classification tests remain governed by the common law control test.

[38] Analyses of workers who appear in the CPS, but for whom no unemployment insurance data is found, show that these workers have person and job characteristics consistent with off-the-books laborers or independent contractors (Abraham et al 2013).

Table 1: Demographic and Employment Statistics of Treatment and Control Industries 2005-2019

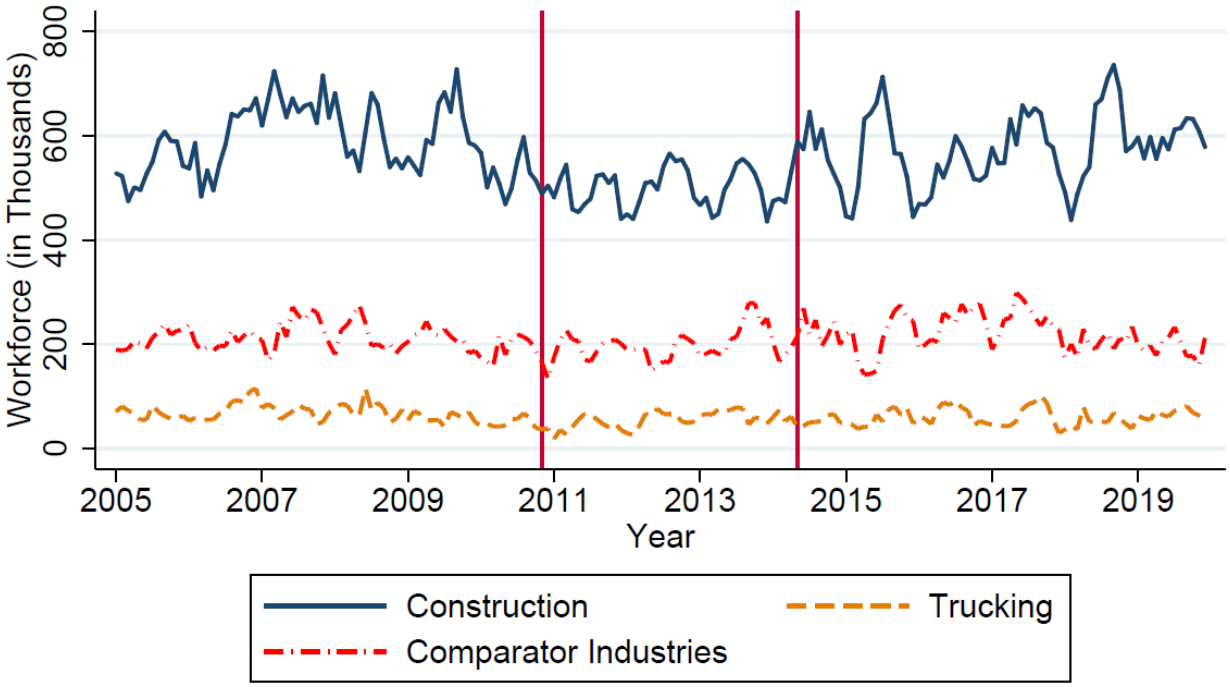
	All New York Workers	Construction	Truck Transportation	Landscaping	Sanitary Services	Air Transportation	Auto Repair	Car Wash	Couriers & Messengers
Age	41.0	40.2	44.0	37.7	41.2	42.7	40.3	32.5	39.5
% Male	52.5	92.0	90.1	92.5	88.6	60.3	93.2	82.6	86.6
% White	73.1	84.1	76.0	92.6	79.9	61.0	80.2	73.3	66.9
% Black	17.1	10.6	17.7	6.4	18.1	27.4	13.8	15.9	27.7
% Hispanic	16.5	25.5	14.9	46.7	13.6	14.1	28.1	31.3	21.9
Weekly Earnings ($ 2019)	1159	1106	1020	772	1069	1163	888	584	957
% Union Member	25.7	29.7	21.5	8.6	44.4	41.8	3.9	9.2	33.9
% Paid Hourly	45.5	56.9	49.8	56.1	58.1	48.7	56.0	71.1	61.5

Notes: Data come from the CPS-ORG. Figures use CPS-ORG earnings weights.

Table 1 reports demographic and employment statistics of the industries in this study from 2005 to 2019. Recall that the New York ABC law targeted the state's construction and truck transportation industries. The comparator industries reported in Table 1 have a similar prevalence of misclassification, similar worker demographics, and similar employment statistics. Based on the first three columns of Table 1, the construction and truck transportation industries are largely comparable to other workers in New York, with a few differences. Notably, construction and trucking are similar in union rates to all New York workers. Union workers are almost certainly employees as only employees have labor rights under the NLRA, though alt-labor organizations exist, such as the Uber Guild. These industries differ from most in that they are male dominated. Construction workers are also more Hispanic, white, and paid hourly more often, while truck drivers earn a lower weekly wage. As previously noted, landscaping, sanitary services, air transportation, auto repair, car washes, and couriers and messengers are also industries that the New York Joint Task Force on Employee Misclassification and Worker Exploitation have identified as misclassification risks. And like construction and trucking, the comparator industries are also male-dominated, with similar ages of workers and similar rates of Black and/or Hispanic workers. Finally, compared to trucking and construction, the comparator

industries have similar weekly earnings and other employment statistics. While no industry perfectly matches construction or trucking, taken together, the workers in the above comparator industries are roughly similar to workers in the construction and trucking industries.

Figure 1: New York Workers in Construction, Trucking, and Comparator Industries



Nov. 2010: ABC Test for Construction Industry
May 2014: ABC Test for Trucking Industry
Source: CPS-ORG

Figure 1, above, provides CPS measures of New York workforces in construction, trucking, and the group of comparator industries discussed above. All industries in Figure 1 maintain relatively stable workforces over 2005-2020, with trucking perhaps having the most stable workforce. Still, Figure 1 does not reveal an obvious change or trend in any industry's workforce after New York's adoption of the ABC test.

To estimate the effects of these laws more precisely on each industry's workforce size and weekly wages, I will run the following difference-in-differences model, based on Autor et al (2007):

$$WorkOutcome_{it} = \alpha + \beta_1 * ABC_{it} + \beta_2 * Post_{it} + \beta_3 * ABC_{it} * Post_{it} + \boldsymbol{\beta} * \boldsymbol{FEs} + \varepsilon_{it}$$

The dependent variable is a work outcome—employment or weekly earnings in 2019 dollars. Following Autor et al (2007), the unit of observation in the employment regression is a month's workforce in each industry. Thus, for the six years of data in my baseline regressions, I record seventy-two observations for the construction industry and for comparator industries. The unit of observation in the earnings regressions are individual workers in those industries. The coefficient of interest is β_3 to estimate the post-treatment effect of the ABC test. The fixed effects vector includes industry fixed effects and month-year fixed effects.

This difference-in-differences model requires a few assumptions to report an effect associated with these Fair Play Acts. Most notably, the data should reflect that if the treatment had not occurred, the differences between the treated and control groups would have stayed constant. This counterfactual can be explored in a few ways. The graphs of the industry workforces in Figure 1 appear roughly parallel prior to the laws. Varying the control groups can also strengthen the validity of this assumption by showing effects of the laws on construction or trucking relative to many different industries. The next section presents these robustness checks.

IV. The Effects of the ABC Test on Employment and Wages

Within New York's construction and trucking industries, the legislative change to the ABC test for worker classification is associated with a decline both industries' workforces, as measured by the CPS. The evidence on wage effects is decidedly more mixed.

A. Workforce Size

Table 2: Effect of the Fair Play Laws on Workforce Size

VARIABLES	(1) Construction Workforce	(2) Construction Log(Workforce)	(3) Trucking Workforce	(4) Trucking Log(Workforce)
ABC Law	-71,060***	-0.094**	-31,032***	-0.151**
	(13,153)	(0.036)	(8,888)	(0.075)
Observations	144	144	144	144
R-squared	0.98	0.98	0.96	0.96
Year X Month FEs	Yes	Yes	Yes	Yes
Industry FEs	Yes	Yes	Yes	Yes

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 2 provides this study's main regression result: New York's Fair Play Acts for the construction and trucking industries were associated with a large, statistically significant decline in the workforces of those industries. According to column 2 of Table 2, New York's construction industry experienced a 9% decrease[39] in the workforce associated with the introduction of the ABC test as the legal test for worker classification. In terms of the number of workers, column 1 suggests that New York had approximately 70,000 fewer construction workers post-ABC test implementation. The New York truck transportation industry's smaller workforce experienced relatively larger effects. In these specifications, the ABC test and its

[39] Because these regressions are semilogarithmic models, with a logged dependent variable and a binary independent variable of interest, the correct interpretation of the effect of the binary variable on the logged dependent variable requires applying the transformation of $(e^{\beta} - 1)$, where β is the reported coefficient from the regression (Halvorsen & Palmquist 1980). This transformation results in a positive increase to the interpretation of the effect of the binary variable, whether the coefficient is positive or negative. For coefficients close to zero, as those in this chapter are, the positive increase by the transformation is small and usually under one percentage point. In the text of this chapter, interpretations of all future coefficients for logged dependent variables will use this transformation, while the tables will report the model's coefficient.

financial penalties for misclassification were associated with a 14% decline in the trucking industry in column (4), or 31,000 fewer workers in column (3).

Table 3.1: Effects of the Fair Play Laws on Logged Construction Workforce, by Demographics

VARIABLES	(1) Black	(2) White	(3) Hispanic	(4) Union	(5) High School	(6) Self-employed
ABC Law	-0.36***	-0.02	0.12	-0.05	-0.16***	-0.10
	(0.13)	(0.04)	(0.09)	(0.12)	(0.04)	(0.07)
Observations	144	144	144	144	144	144
R-squared	0.53	0.97	0.89	0.80	0.98	0.96
Year X Month FEs	Yes	Yes	Yes	Yes	Yes	Yes
Industry FEs	Yes	Yes	Yes	Yes	Yes	Yes

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 3.2: Effects of the Fair Play Laws on Logged Trucking Workforce, by Demographics

VARIABLES	(1) Black	(2) White	(3) Hispanic	(4) Union	(5) High School	(6) Self-Employed
ABC Law	-0.78***	-0.09	-0.76***	-0.29	-0.24***	-0.03
	(0.17)	(0.07)	(0.16)	(0.19)	(0.08)	(0.19)
Observations	136	144	130	141	144	136
R-squared	0.87	0.96	0.92	0.80	0.94	0.82
Year X Month FEs	Yes	Yes	Yes	Yes	Yes	Yes
Industry FEs	Yes	Yes	Yes	Yes	Yes	Yes

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Tables 3.1 and 3.2 reveal heterogenous effects across worker demographics in the construction and trucking industries. Implementation of the ABC test appears to have disproportionately affected black workers in the construction and trucking industries. The very large effects in Table 3.2 are partly due to the numbers of observations for the smaller truck driving industry. Still, in both industries, black workers disproportionately suffer following labor market shocks, with outsized gains in unemployment compared to white workers despite similar labor force participation rates (De et al. 2021; Hoynes et al. 2012). This was especially true with

unemployment shocks with COVID-19 (Gould & Wilson 2020). In this context, construction and trucking labor supply suffered shocks with labor costs increasing. While not as dramatic as both the demand and supply shocks due to COVID-19, the labor supply shocks from the Fair Play Acts caused disproportionate yet unsurprising effects on Black workers.

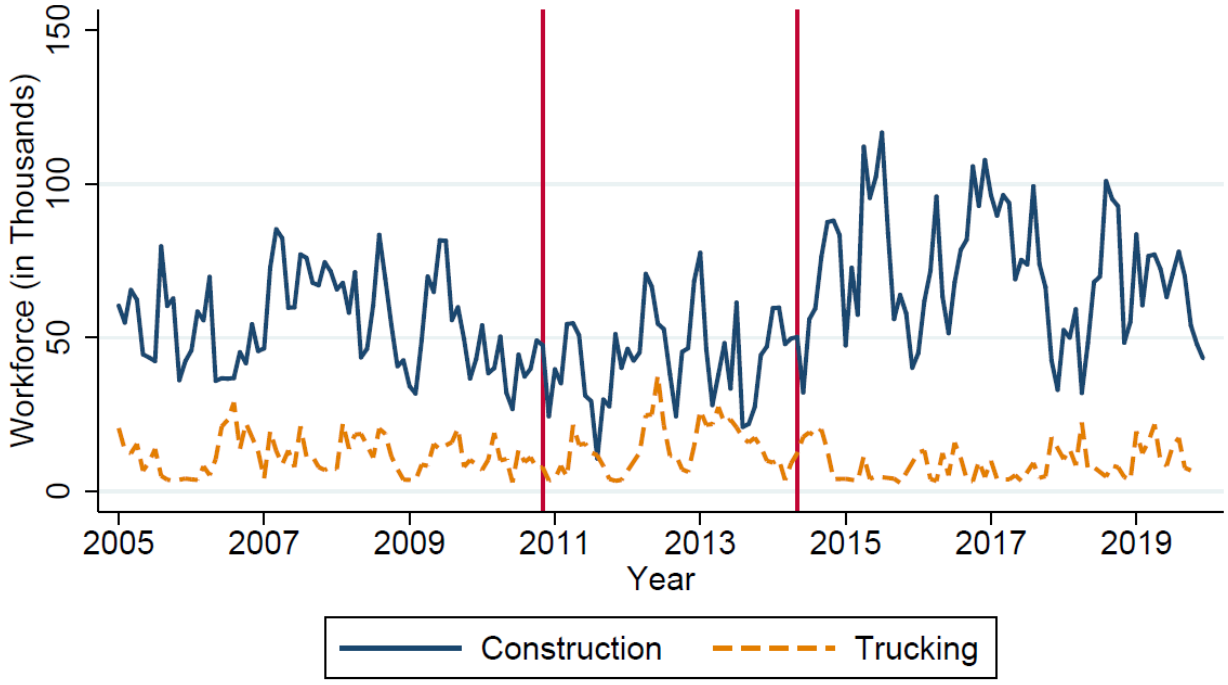
To better understand the large effects on Black workers, Figure 2, below, charts Black workers in these two industries as estimated by the CPS from 2005 to 2020. While Black construction workers eventually returned several years after the ABC test in that industry, Black truck drivers did not. Table 3.2 also reports a similar massive shock to Hispanic truck drivers, though no statistically significant effect is identified for Hispanic construction workers in Table 3.1. These regression results also identify that less educated workers, reporting a high school degree or less of education and who constitute majorities of both industries, suffered a slightly large decline than seen in Table 2.

Focusing the analyses on a given demographic in a given industry for a given month, the CPS has only a few observations for several cells, especially when analyzing the trucking industry. Thus, the inclusion of one or two fewer survey respondents, who are then weighted in the CPS, can represent a large percentage decline. Still, similar effects are seen when aggregating workers in 3-month or 6-month cells. While the magnitudes of these effects on Black, Hispanic, and less educated workers need further precision, the results provide evidence that there is a significant negative effect of these Fair Play laws on the workforces of these demographic groups.

Still, more research is needed to understand the effects on Black workers. In particular, research on employee classification changes should begin with estimating rates of misclassification by race. Currently, this research is scarce. Are Black workers

disproportionately suffering because they are much more likely to be misclassified, or because Black workers are usually the first group of workers to be laid off after labor market shocks? Disentangling the effects of laws that crack down on misclassification remains an important question for future research in order to better understand heterogenous effects by race.

Figure 2: Black New York Workers in Construction and Trucking



Nov. 2010: ABC Test for Construction Industry
May 2014: ABC Test for Trucking Industry
Source: CPS-ORG

When key elements of the regression change, the results in Table 2 are relatively stable—the laws introducing the ABC test are usually associated with large, statistically significant declines in the workforce. However, some regressions show a smaller decline in the workforce, and some regressions lose statistical significance.

The regressions in Table 2 use six years of data, from 2008 to 2014 for the construction regression, with a window of approximately three years on either side of the law's implementation. The length of time that a difference-in-differences model considers matters

because a treatment effect can vary over time. In particular, short-run effects of a treatment will be overweighted in a regression that considers a long window around the treatment date (Goodman-Bacon 2021). Considering several different time periods helps identify the average effect of the treatment across years.

Column (2) in Appendix tables A.1.1 through A.1.3 shows that when that window size changes to two (for construction, 2009 to 2013), four (2007 to 2014), or five (2006 to 2015) years around the law's enactment date, the estimates for the effect on the construction workforce vary between a decline of 5% and 10% of the workforce and a decline of 56,000 to 79,000 workers. For the trucking industry, the percentage decline is much more variable, ranging from 0.1% to nearly 16%, with an estimated range of about 18,000 to 31,000 fewer workers in trucking. Again, this is due to the much smaller industry with fewer observations in the CPS-ORG.

While the ABC test and the penalties for misclassification were applied to each industry as a whole, workers in certain occupations—particularly lower-paid occupations—were most likely to be impacted by the new law because lower-paid workers are more at risk of misclassification. Construction laborers and truck drivers are the most frequent occupations within the construction and truck transportation industries, based on CPS data, representing 20% and 50% of those industries respectively. Appendix Table A.2.1 reports regression results when limiting the analysis to just these subsets of workers. For construction laborers and truck drivers, the regression results are similar to those in Table 2, with a decline in the construction laborer workforce of 10% and a decline in the truck driver workforce of 14%. Limited to workers with below-median weekly earnings, the point estimates in Appendix Table A.2.2 are similar in magnitude, but less precise.

Results from a difference-in-differences model depend on a control group that does not experience large changes during the period so as to drive the results, instead of the treatment explaining the results. Appendix Tables A.3.1 through A.3.8 show regression results when changing the comparator industries. Whether adding or removing industries from the pool of comparator industries, the effect of the ABC law on the construction workforce is statistically significant and around 8-14% in nearly all regressions. These results hold when swapping out the entire pool of industries for the largest industry in the CPS data in New York during this time, elementary and secondary schools, as seen in Table A.3.8. The effects on the trucking industry are more variable to changing the comparator industries, but several effects are still statistically significant, and all effects are negative.

B. Wages

Table 4 reports the effect of the implementation of the Fair Play laws on logged weekly earnings in the construction and trucking industries. Using the same model specifications as in Table 2, Table 4 estimates that the Fair Play laws were associated with an 8.2% increase of average weekly wages in the construction industry, and a similarly large (although less precise) increase for the trucking industry. Admittedly, the wage results are sensitive to the chosen specifications and changing the time periods, treated workers, and comparator groups often reduces the size of these wage gains and removes findings of statistical significance. This may be due to measurement error from survey respondents who report weekly earnings instead of direct measures from an administrative dataset.

Table 4: Effect of the Fair Play Law on Logged Weekly Earnings

VARIABLES	(1) Construction: Log(Weekly Earnings)	(2) Trucking: Log(Weekly Earnings)
ABC Law	0.08*	0.07
	(0.05)	(0.09)
Observations	2,996	1,101
R-squared	0.20	0.23
Year X Month FEs	Yes	Yes
Industry FEs	Yes	Yes

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Explanatory variables not shown: Male, Age, Age Squared, White, Hispanic, Union

Tables 5.1 and 5.2 consider these wage effects by demographic groups. For construction, Table 5.1 shows that the wage gains are concentrated primarily in Hispanic and less educated workers. Notably, the point estimate for Black construction workers, while not statistically significant, is the only demographic group with a negative coefficient. Coupled with findings from Table 3.1, Table 4 indicates that the ABC law's harm to Black construction workers might have been twofold—they held fewer jobs in the industry without any corresponding wage increases to compensate the remaining Black workers. While Table 5.2 has large positive point estimates for percent wage gains in the trucking industry, no estimate is statistically significant. Thus, it is hard to draw strong conclusions from largely statistically insignificant results that vary in magnitude. Perhaps wages rose for Hispanic and less educated construction workers, but more evidence is needed before making a strong causal claim of these ABC laws on worker wages.

Table 5.1: Effect of Fair Play Laws on Construction Weekly Earnings, by Demographics

VARIABLES	(1) Black Log(Wages)	(2) White Log(Wages)	(3) Hispanic Log(Wages)	(4) Union Log(Wages)	(5) High School or Less Log(Wages)
ABC Law	-0.02	0.08	0.22**	0.03	0.15**
	(0.16)	(0.05)	(0.09)	(0.08)	(0.06)
Observations	284	2,558	635	872	1,756
R-squared	0.41	0.17	0.25	0.22	0.22
Year X Month FEs	Yes	Yes	Yes	Yes	Yes
Industry FEs	Yes	Yes	Yes	Yes	Yes

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Explanatory variables not shown: Male, Age, Age Squared, Union

Table 5.2: Effect of Fair Play Laws on Trucking Weekly Earnings, by Demographics

VARIABLES	(1) Black Log(Wages)	(2) White Log(Wages)	(3) Hispanic Log(Wages)	(4) Union Log(Wages)	(5) High School or Less Log(Wages)
ABC Law	0.14	0.17	0.20	0.16	0.15
	(0.26)	(0.10)	(0.29)	(0.19)	(0.10)
Observations	162	864	213	264	625
R-squared	0.49	0.25	0.41	0.44	0.30
Year X Month FEs	Yes	Yes	Yes	Yes	Yes
Industry FEs	Yes	Yes	Yes	Yes	Yes

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Explanatory variables not shown: Male, Age, Age Squared, Union

C. New Construction Buildings

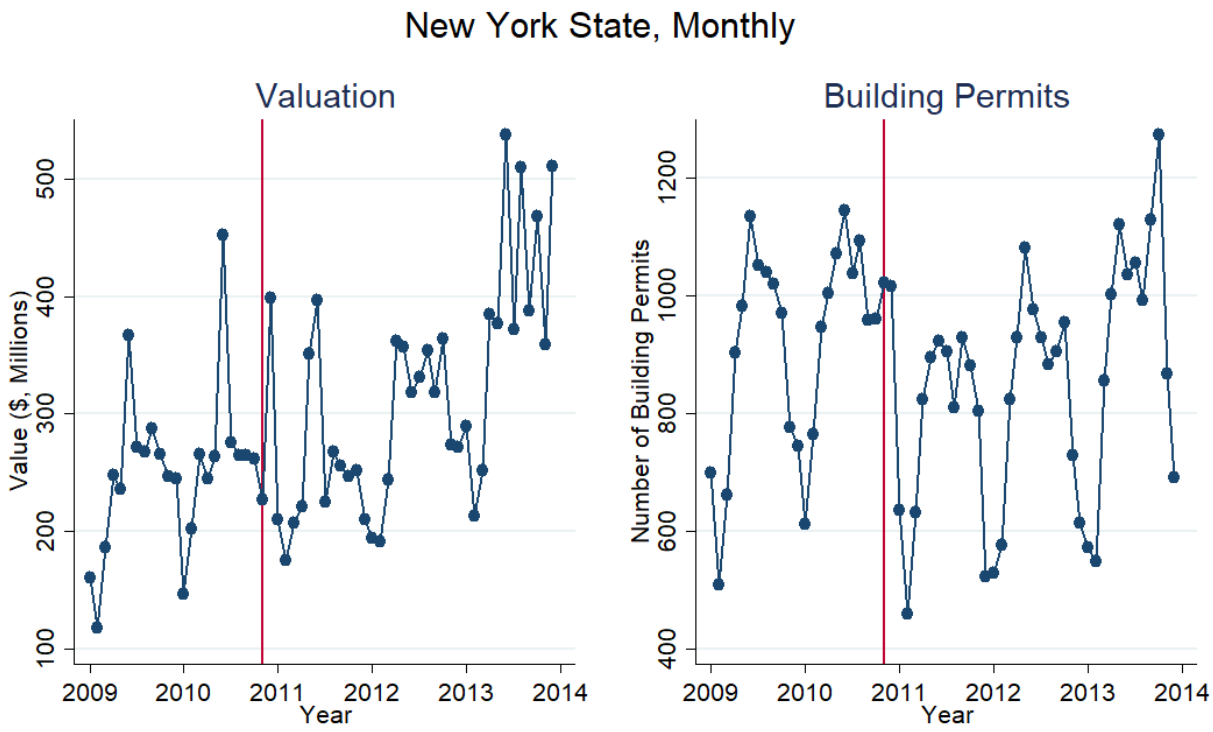
If New York's construction Fair Play Act caused declines in construction workforces, similar declines are likely in other metrics of the construction industry. This section considers the Building Permits Survey, a U.S. Census Bureau dataset that accounts for over 99% of all privately constructed residential buildings.[40] This survey canvasses monthly over 20,000 permit-issuing places for the construction of residential buildings, usually local government branches, to

[40] Available here: https://www.census.gov/construction/bps/index.html

collect data on the number of construction permits and estimated valuations of construction projects, among other data. While private residential construction is only one segment of the construction industry, there are no indications that the Fair Play Act would have differential effects across the construction industry.

Figure 3, below, reports data on new private residential construction in New York and indicates the enactment of the construction Fair Play Act. In panels on the estimated valuation and the number of building permits, there are no signs of slowdowns in the construction industry after the law. If anything, the data for estimated valuation of private residential construction rises in the following years, while data on building permits follows its seasonal cyclical pattern.

Figure 3: New Private Residential Construction Valuation and Building Permits



Source: U.S. Census Building Permits Survey Dataset

With the Fair Play Act raising labor costs and enforcement, and with some evidence of meaningful workforce declines associated with the law, the Building Permits Survey data provide some noncausal evidence that the Fair Play Act did not majorly disrupt the construction industry. That is a positive outcome for the law but is seemingly at odds with the previous findings. More causal evidence is needed to draw stronger conclusions, but it is possible that the construction industry, or at least the private residential construction industry, would have grown faster but for this law's effects. Alternatively, New York's construction industry could have substituted labor with higher shares of capital in response to the law. These data raise questions for further study on the overall impact of the law on the entire construction industry, not just its workforce.

V. DISCUSSION

The introductions of the ABC test alongside greater penalties and enforcement were enacted to help workers by reducing misclassification. The ABC test is broadly championed by many workers rights' organizations (Rhinehart et al. 2021). Yet results in the previous section provide initial evidence that firms reduce workforces in industries where the ABC test and penalties for misclassification were implemented. This corresponds with research that shows that even in the domain of worker classification, employers are responsive to financial incentives (Wilking 2022).

Conservative estimates from this study of the effects on the construction workforce are around an 8% reduction. The results for trucking are more volatile, but provide even larger estimates of workforce reduction. While an 8% or more reduction of a workforce is a large estimate for changing the legal test for worker classification, the estimates are large in part

because these industries were specifically targeted for their high rates of misclassification. Prior estimates of New York's construction industry have suggested 15% or more of workers were misclassified or working off-the-books (Donahue et al 2007; Parrott 2011). This study's estimates on workforces are thus expected to be larger than the normal industry. While that provides support for these larger estimates, it also clarifies that a similar law implementing the ABC test for different industries likely would not see such large declines in workforces. For example, other states that enacted ABC tests for their unemployment insurance program often did so without the penalties that New York enacted for its most troublesome industries.

The results of this chapter matter for at least two reasons. First, changes to worker classification tests are not static, and addressing misclassification and its costly consequences—to workers, employers who comply, and state and federal governments—requires understanding the dynamic effects of increasing labor costs for employers. Studies of misclassification overlook these effects, often assuming all misclassified workers can be properly classified as employees when estimating the costs of misclassification (Juravich et al. 2021; National Employment Law Project 2020). These dynamic effects also should inform the protections for the workers who will be most impacted, such as minority workers and less educated workers. Similarly, to identify the workers most at risk for losing their job, further research should separate employees from independent contractors to determine if the workers losing jobs following these laws are mostly independent contractors.

Second, and relatedly, these results matter because they underscore the extent of employer power in the employment relationship. The introduction of the ABC test and the associated penalties seems to have shifted the exercise of employer power from misclassifying workers to simply letting many workers go. Labor and employment regulators can attempt to

reduce misclassification, but they cannot force employers to retain costlier employees. While regulators have many desired effects from reduced misclassification—more benefits and rights for workers, more fair competition between employers, more funding for state and federal governments—these results suggest that employers can exercise power in other ways that undermine some of these goals. Further research that examines the effects on traditional employment through unemployment insurance data could better determine how many misclassified workers are shifted into traditional employment that achieves these goals.

Finally, this chapter brings renewed attention to the existing framework of different worker classification tests across state lines and across employment law purposes. On the one hand, allowing different jurisdictions and different laws to utilize different legal standards to determine employment status preserves flexibility, which might be desirable from both a political and practical perspective. On the other hand, the current legal landscape has created confusion for businesses and workers, which has exacerbated the misclassification problem. There is not a politically expedient way to balance the interests of so many different workers and employers across all industries. Still, these results serve as a reminder one clear test, applied evenly for all legal purposes, might significantly reduce the costs of misclassification and enforcement.

These results should inform regulators that the ABC test is not a quick fix for achieving those goals. Results from this chapter reveal unintended consequences for workers in these New York industries that adopted the ABC test. This chapter makes clear that employers respond to the ABC test and its associated financial incentives, perhaps by laying off misclassified workers. But more research is needed to determine the extent to which the ABC test reduces

misclassification, whether the workers who lose jobs in these industries find work in others, and how much the state gains or loses in funding from these changes.

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Appendix

Table A.1.1: Effect of the Fair Play Laws on Workforce Size, Two-Year Window Around Law

VARIABLES	(1) Construction Workforce	(2) Construction Log(Workforce)	(3) Trucking Workforce	(4) Trucking Log(Workforce)
ABC Law	-56,549***	-0.051	-20,115	-0.167**
	(15,387)	(0.039)	(12,129)	(0.082)
Observations	96	96	96	96
R-squared	0.98	0.98	0.95	0.97
Year X Month FEs	Yes	Yes	Yes	Yes
Industry FEs	Yes	Yes	Yes	Yes

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table A.1.2: Effect of the Fair Play Laws on Workforce Size, Four-Year Window Around Law

VARIABLES	(1) Construction Workforce	(2) Construction Log(Workforce)	(3) Trucking Workforce	(4) Trucking Log(Workforce)
ABC Law	-79,297***	-0.102***	-23,270***	-0.064
	(11,804)	(0.031)	(7,120)	(0.070)
Observations	192	192	192	192
R-squared	0.98	0.98	0.96	0.95
Year X Month FEs	Yes	Yes	Yes	Yes
Industry FEs	Yes	Yes	Yes	Yes

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table A.1.3: Effect of the Fair Play Laws on Workforce Size, Five-Year Window Around Law

VARIABLES	(1) Construction Workforce	(2) Construction Log(Workforce)	(3) Trucking Workforce	(4) Trucking Log(Workforce)
ABC Law	-68,298***	-0.089***	-17,955***	-0.001
	(12,161)	(0.032)	(6,163)	(0.058)
Observations	240	240	240	240
R-squared	0.97	0.97	0.96	0.95
Year X Month FEs	Yes	Yes	Yes	Yes
Industry FEs	Yes	Yes	Yes	Yes

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table A.2.1: Effect of the Fair Play Laws on Construction Laborers and Truck Drivers

VARIABLES	(1) Construction Workforce	(2) Construction Log(Workforce)	(3) Trucking Workforce	(4) Trucking Log(Workforce)
ABC Law	-8,516	-0.106**	-31,242***	-0.152*
	(7,941)	(0.052)	(8,598)	(0.091)
Observations	144	144	144	144
R-squared	0.91	0.92	0.97	0.96
Year X Month FEs	Yes	Yes	Yes	Yes
Industry FEs	Yes	Yes	Yes	Yes

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table A.2.2: Effect of the Fair Play Laws on Workforce Size, Below-Median Earners

VARIABLES	(1) Construction Workforce	(2) Construction Log(Workforce)	(3) Trucking Workforce	(4) Trucking Log(Workforce)
ABC Law	-7,637*	-0.137	-2,863	-0.146
	(4,448)	(0.160)	(2,899)	(0.225)
Observations	144	144	133	133
R-squared	0.77	0.74	0.76	0.76
Year X Month FEs	Yes	Yes	Yes	Yes
Industry FEs	Yes	Yes	Yes	Yes

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table A.3.1: Changing Comparator Group – Dropping Couriers and Messengers

VARIABLES	(1) Construction Workforce	(2) Construction Log(Workforce)	(3) Trucking Workforce	(4) Trucking Log(Workforce)
ABC Law	-71,008***	-0.089**	-24,707***	-0.147*
	(13,267)	(0.041)	(7,355)	(0.075)
Observations	144	144	144	144
R-squared	0.98	0.98	0.94	0.94
Year X Month FEs	Yes	Yes	Yes	Yes
Industry FEs	Yes	Yes	Yes	Yes

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table A.3.2: Changing Comparator Group – Dropping Car Wash Industry

VARIABLES	(1) Construction Workforce	(2) Construction Log(Workforce)	(3) Trucking Workforce	(4) Trucking Log(Workforce)
ABC Law	-71,890***	-0.096**	-30,823***	-0.155**
	(13,209)	(0.037)	(8,477)	(0.074)
Observations	144	144	144	144
R-squared	0.98	0.98	0.96	0.95
Year X Month FEs	Yes	Yes	Yes	Yes
Industry FEs	Yes	Yes	Yes	Yes

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table A.3.3: Changing Comparator Group – Dropping Auto Repair Industry

VARIABLES	(1) Construction Workforce	(2) Construction Log(Workforce)	(3) Trucking Workforce	(4) Trucking Log(Workforce)
ABC Law	-83,218***	-0.150***	-26,498***	-0.174**
	(13,181)	(0.046)	(8,553)	(0.080)
Observations	144	144	144	144
R-squared	0.98	0.98	0.92	0.93
Year X Month FEs	Yes	Yes	Yes	Yes
Industry FEs	Yes	Yes	Yes	Yes

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table A.3.4: Changing Comparator Group – Dropping Air Transportation Industry

VARIABLES	(1) Construction Workforce	(2) Construction Log(Workforce)	(3) Trucking Workforce	(4) Trucking Log(Workforce)
ABC Law	-73,603***	-0.106***	-19,554**	-0.109
	(13,099)	(0.040)	(7,962)	(0.075)
Observations	144	144	144	144
R-squared	0.98	0.98	0.95	0.94
Year X Month FEs	Yes	Yes	Yes	Yes
Industry FEs	Yes	Yes	Yes	Yes

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table A.3.5: Changing Comparator Group – Dropping Landscaping Industry

VARIABLES	(1) Construction Workforce	(2) Construction Log(Workforce)	(3) Trucking Workforce	(4) Trucking Log(Workforce)
ABC Law	-75,043***	-0.104**	-22,230***	-0.131
	(13,467)	(0.041)	(8,162)	(0.081)
Observations	144	144	144	144
R-squared	0.98	0.98	0.93	0.93
Year X Month FEs	Yes	Yes	Yes	Yes
Industry FEs	Yes	Yes	Yes	Yes

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table A.3.6: Changing Comparator Group – Dropping Sanitary Services Industry

VARIABLES	(1) Construction Workforce	(2) Construction Log(Workforce)	(3) Trucking Workforce	(4) Trucking Log(Workforce)
ABC Law	-61,556***	-0.026	-31,207***	-0.195**
	(12,062)	(0.037)	(7,958)	(0.077)
Observations	144	144	144	144
R-squared	0.98	0.98	0.94	0.94
Year X Month FEs	Yes	Yes	Yes	Yes
Industry FEs	Yes	Yes	Yes	Yes

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table A.3.7: Changing Comparator Group – Adding Grocery Industry

VARIABLES	(1) Construction Workforce	(2) Construction Log(Workforce)	(3) Trucking Workforce	(4) Trucking Log(Workforce)
ABC Law	-71,844***	-0.121***	-34,252***	-0.102
	(14,232)	(0.031)	(10,828)	(0.067)
Observations	144	144	144	144
R-squared	0.93	0.93	0.98	0.98
Year X Month FEs	Yes	Yes	Yes	Yes
Industry FEs	Yes	Yes	Yes	Yes

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table A.3.8: Replacing Comparator Group with Elementary and Secondary Schools

VARIABLES	(1) Construction Workforce	(2) Construction Log(Workforce)	(3) Trucking Workforce	(4) Trucking Log(Workforce)
ABC Law	-42,464**	-0.090***	-15,038	-0.033
	(20,010)	(0.033)	(11,717)	(0.071)
Observations	144	144	144	144
R-squared	0.78	0.79	0.99	0.99
Year X Month FEs	Yes	Yes	Yes	Yes
Industry FEs	Yes	Yes	Yes	Yes

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1