



Wage Theft in Texas

Minimum Wage Violations and Payday Law Enforcement, 2009-2022

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Introduction

Most workers in Texas are entitled to a minimum wage—last raised to \$7.25 in July 2009—either through state or federal law. While inflation has continued to decrease the real value of the minimum in the years since (with \$7.25 today worth just \$5.25 in 2009 dollars), this report finds that thousands of Texans are illegally paid below the minimum wage each year.

To estimate the incidence of minimum wage violations in Texas between 2009 and 2022, this memo uses Current Population Survey (CPS) Outgoing Rotation Group data, widely considered the best publicly available survey data on hours and earnings. CPS data enable us to identify minimum wage violations for all covered, nonexempt workers in Texas. Estimates should be considered *conservative underestimates* due to data limitations and methods used.¹

Also crucial to Texas' labor standards landscape is the Texas Payday Law, giving workers key wage protections since its passage in 1989. In order to understand the Texas Workforce Commission (TWC)'s enforcement of wage theft provisions under the Texas Payday Law, the workplace justice lab@RU analyzed 136,420 claims filed from July 2009 to December 2020.

We find that wage theft is persistent and widespread in Texas, and that TWC is struggling to keep up with both claims from workers and collections from employers. Key findings include:

- Over 3 million workers are estimated to have suffered a minimum wage violation in Texas between 2009 and 2022 (3% of all workers, 11% of low-wage workers).
- **Minimum wage violations cost individual workers in Texas nearly \$4,000 per year on average and over \$12 billion in aggregate over the last fourteen years.**
- Minimum wage violations caused victims' income to fall below the national poverty line every year between 2009 and 2022.
- Minimum wage violations disproportionately harm immigrants, women, Latinx, and Asian workers; younger workers (under 25) and older workers (over 65); those with less education; unmarried workers; workers with children; non-unionized workers; those working in the service sector; part-time workers; and workers not paid by the hour (flat daily/weekly payments, project-based pay, piece-rates).
- Significant variation also exists across industries: the highest-violation industries were Private Households (maids, housecleaners, child care workers), Food Services and Drinking Places (waiters, waitresses, and cooks), and Personal and Laundry Services (hairdressers, cosmetologists, and personal appearance workers).
- Across all industries, the highest violation rates were found in the following occupations: waiters and waitresses; teacher assistants; maids and housekeeping cleaners; child care workers; grounds and maintenance workers; personal and home care aides; cooks; and janitors and building cleaners.
- Violation rates vary geographically across the state of Texas: four of the five highest-violation metropolitan statistical areas sit along the Mexican border: Laredo, McAllen-Edinburg-Mission, Brownsville-Harlingen, and El Paso (Victoria is the fifth).

¹ See Methodological Appendix for more information.

In regard to the enforcement of the Texas Payday Law, we find that:

- While average wages ordered per claim continued to rise from \$1,613 in 2010 to \$2,249 in 2020, the average amount paid during the same period declined slightly from \$435 to \$406.
- **While nearly \$99 million in wages were ordered across more than 57,000 cases from 2010 to 2020, over \$78 million—or 80% of wages ordered—has yet to be received by workers.**
- **More than 39,000 claimants have not seen any portion of their ordered wages, yet nearly 17,000 of these claims are marked as being “closed” and “paid in full.”**
- TWC’s database of active administrative liens shows over 10,000 open liens, with delinquency amounts totaling a potential \$113 million.

We provide further detail on these findings in the pages below.

Unpaid Wages: A Snapshot

Table 1. Minimum Wage Violations in Texas

	Eligible workers experiencing minimum wage violations									
	Share of eligible workers	Number	Average hourly underpayment	Share of income lost	Average weekly underpayment	Average annual underpayment if full-year	Yearly income if full-time, year-round worker	Poverty threshold for 1 person	Below poverty threshold?	Total earned annual wages not paid to workers
Average/Total:	2.9%	3,288,669	\$2.11	29%	\$77	\$3,985	\$9,561	\$11,889	Y	\$12,180,057,272
2009	5.5%	417,786	\$1.37	20%	\$45	\$2,356	\$9,396	\$10,830	Y	\$984,236,262
2010	4.9%	378,526	\$1.70	23%	\$58	\$2,997	\$9,789	\$10,830	Y	\$1,134,375,333
2011	4.2%	331,871	\$1.70	23%	\$59	\$3,075	\$10,022	\$10,890	Y	\$1,020,480,756
2012	3.4%	274,509	\$2.07	28%	\$75	\$3,916	\$9,827	\$11,170	Y	\$1,075,107,459
2013	3.1%	260,315	\$1.81	25%	\$64	\$3,334	\$10,006	\$11,490	Y	\$867,980,804
2014	3.0%	254,568	\$2.06	28%	\$75	\$3,877	\$9,759	\$11,670	Y	\$987,064,940
2015	2.9%	241,180	\$2.06	28%	\$78	\$4,065	\$10,230	\$11,770	Y	\$980,489,601
2016	2.8%	238,722	\$2.14	29%	\$74	\$3,841	\$9,200	\$11,880	Y	\$916,888,107
2017	2.0%	173,809	\$2.07	29%	\$75	\$3,910	\$9,802	\$12,060	Y	\$679,594,232
2018	2.3%	206,925	\$2.61	36%	\$95	\$4,918	\$8,738	\$12,140	Y	\$1,017,756,070
2019	2.0%	181,855	\$2.85	39%	\$104	\$5,425	\$8,375	\$12,490	Y	\$986,565,023
2020	1.6%	136,608	\$2.35	32%	\$88	\$4,553	\$9,479	\$12,760	Y	\$621,967,081
2021	1.4%	127,101	\$2.41	33%	\$90	\$4,663	\$9,379	\$12,880	Y	\$592,624,680
2022 (thru July)	1.2%	64,895	\$2.39	33%	\$93	\$4,853	\$9,857	\$13,590	Y	\$314,926,924

As shown in Table 1 above, over 3 million workers are estimated to have suffered a minimum wage violation in Texas between 2009 and 2022 (3 percent of all workers, 11 percent of low-wage workers²). These violations cost individual workers in Texas nearly \$4,000 per year on average and over \$12 billion in aggregate over the last fourteen years. Minimum wage violations caused victims’ income to fall below the national poverty line every year between 2009 and 2022.

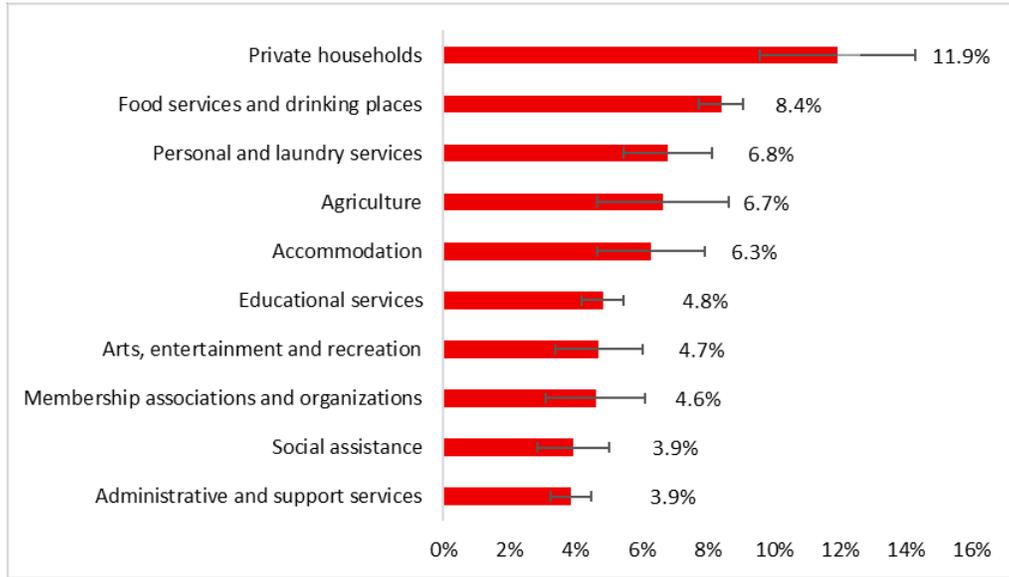
Table 1 also shows that the annual minimum wage violation rate steadily declined over the years as the average amount of underpayment generally increased. We would speculate that the declining violation rate reflects the effects of inflation on average wages while the minimum wage remained flat at \$7.25. As workers’ incomes increased along with inflation, many modestly underpaid workers’ wages were brought above the \$7.25 state and federal minimum wage, thereby removing them from the “violation pool.” Those left behind may therefore have been the most exploited workers who did not see wage gains and whose average underpayment remained high. The exit of modestly underpaid workers from the violation pool thus caused the average underpayment to rise even as the overall rate of violations declined.

Minimum Wage Violation Rates by Industry (2009-2022)

The industries with the highest minimum wage violation rates are detailed in Figure 1 below. The Private Households industry had the highest estimated violation rate (12%), followed by Food Services and Drinking Places (8%) and Personal and Laundry Services (7%).

² “Low-wage” is defined as in the bottom quintile of the wage distribution by year.

Figure 1. Highest Minimum Wage Violation Rates by Industry (2009-2022)



Note: Estimates represent predicted probabilities. 95% confidence intervals shown.
Average violation rate, all industries: 2.8 percent.

Figure 2. Among those paid less than the minimum wage, in what jobs were they working (by industry)?

Private households

- 60% Maids and housekeeping cleaners
- 21% Child care workers

→ This means that out of all the workers in the private household industry who were paid less than the minimum wage, 60% were maids/housekeepers and 21% were child care workers.

Food services and drinking places

- 50% Waiters and waitresses
- 13% Cooks

Arts, entertainment, and recreation

- 14% Miscellaneous entertainment attendants and related workers
- 8% Cashiers
- 7% Bartenders

Personal and laundry services

- 43% Hairdressers, hairstylists, and cosmetologists
- 20% Miscellaneous personal appearance workers

Membership associations

- 17% Janitors and building cleaners
- 14% Secretaries and administrative assistants

Agriculture

- 75% Miscellaneous agricultural workers

Social assistance

- 54% Child care workers
- 8% Personal and home care aides

Accommodation

- 45% Maids and housekeeping cleaners
- 14% Waiters and waitresses

Educational services

- 27% Teacher assistants
- 10% Janitors and building cleaners
- 7% Cooks

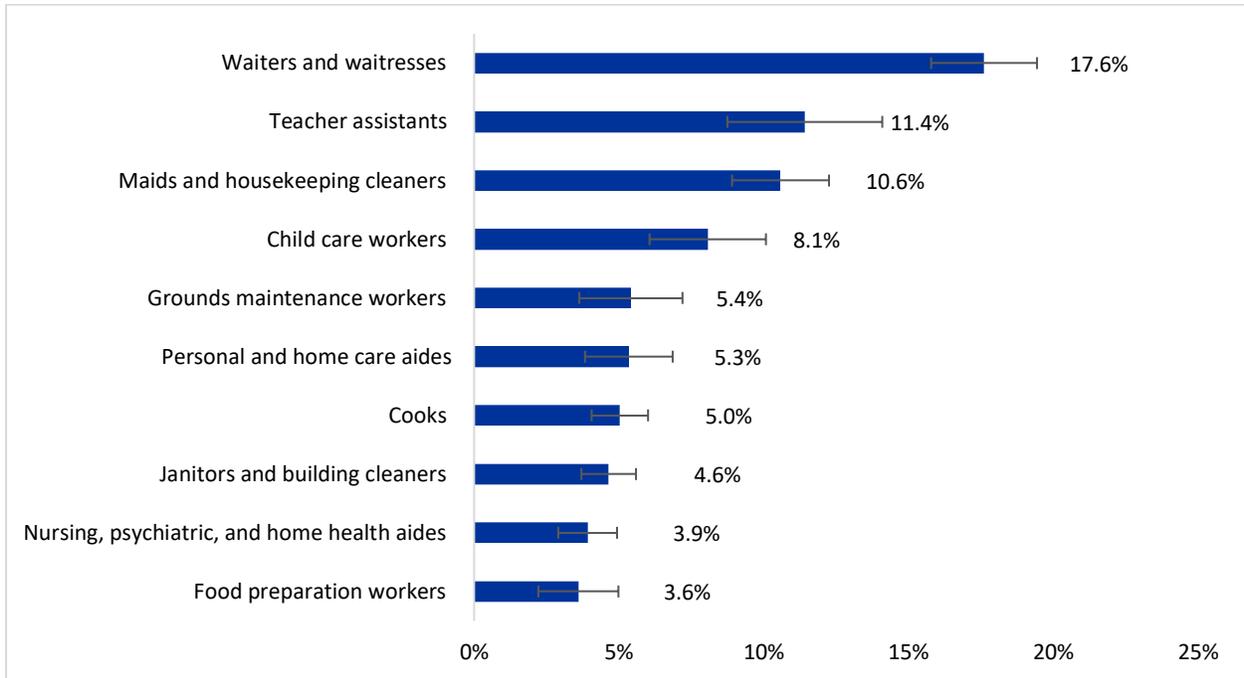
Administrative and support services

- 30% Maids and housekeeping cleaners
- 17% Janitors and building cleaners
- 17% Grounds maintenance workers

Minimum Wage Violation Rates by Occupation (2009-2022)

The highest-violation occupations were: Waiters and waitresses (18%), Teacher assistants (11%), Maids and housekeeping cleaners (11%), and Child care workers (8%).

Figure 3. Ten Highest Minimum Wage Violation Rates by Occupation, Overall (All Eligible Workers, 2009-2022)

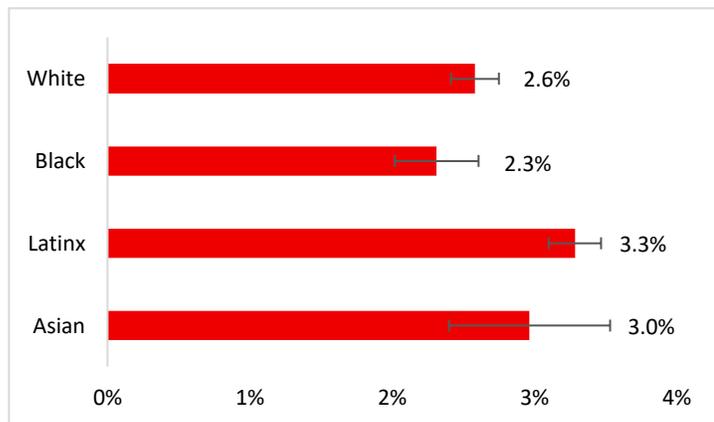


Note: Estimates represent predicted probabilities. 95% confidence intervals shown.

Demographic Factors

These data do not tell us *why* some industries and occupations have more or fewer violations. Still, it is worth noting that the industries with the highest estimated violation rates tend to employ many women, people of color, and immigrant workers, while industries with lower violation rates often employ more men and/or historically have been more unionized; these patterns point to discrimination and occupational segregation as potential explanations.

Figure 4. Probability of Experiencing a Minimum Wage Violation by Racial/Ethnic Group, 2009-2022

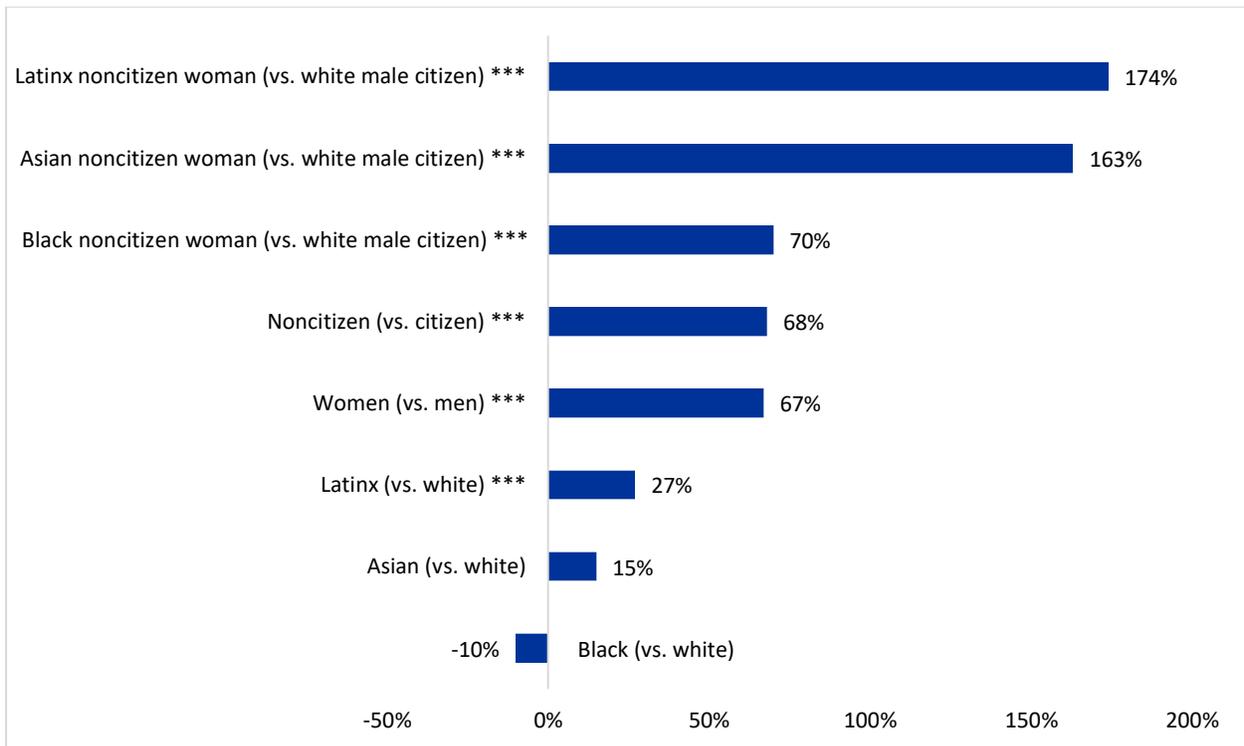


Note: Estimates represent predicted probabilities. 95% confidence intervals shown.

To assess the likelihood that any given white, Black, Latinx, or Asian worker would suffer a minimum wage violation, we generate and compare predicted probabilities. These may be thought of as “risk factors” for each group. As shown in Figure 4 above, among all eligible workers, Latinx workers are at greatest risk of experiencing minimum wage violations (3.3% probability), followed by Asian workers (3% probability, but note the wide confidence interval due to a small sample size), white (2.6%), and Black workers (2.3%).

To compare demographic groups more precisely, we can estimate the *relative* probability that each group would experience a minimum wage violation (relative to their reference group). For people of color, the reference group is white workers; for women, it’s men; for noncitizens, the reference group is citizens, and so on. As shown in Figure 5, noncitizens³ were 68% more likely to experience a minimum wage violation in Texas than are citizens. Women were similarly 67% more likely than men. Latinx workers were 27% more likely than white workers to suffer a minimum wage violation. Asian workers were 15% more likely and Black workers were 10% less likely to suffer a violation than white workers—but those differences were not statistically significant. Both Latinx noncitizen women and Asian noncitizen women are paid below the minimum wage at particularly high rates, nearly three times the rate of white male citizens.

Figure 5. Probability of Minimum Wage Violation by Demographic Group (Relative to Reference Group), 2009-2022

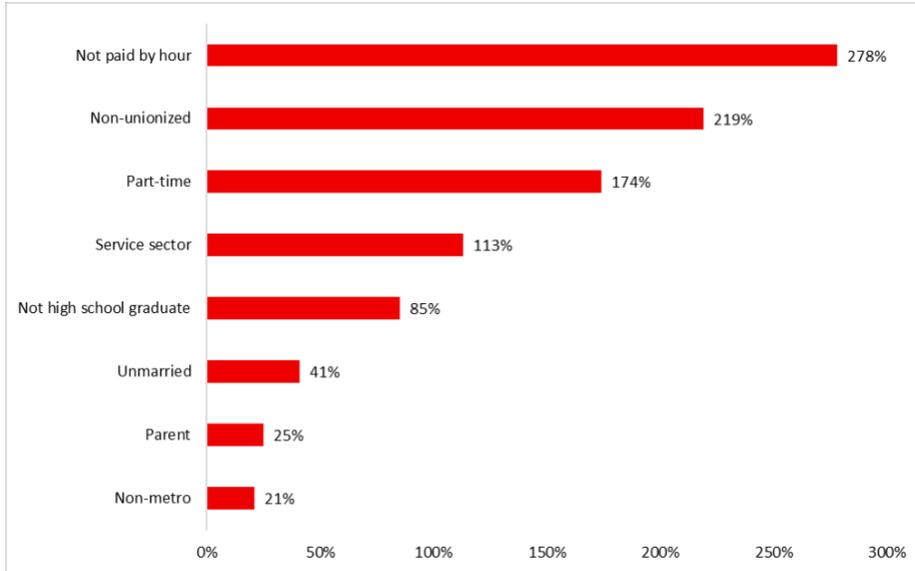


Statistically significant differences (95%) are indicated by ***.

³ According to the CPS, noncitizen refers to any person born outside the U.S. who is not a naturalized U.S. citizen (e.g., refugee, asylee, undocumented immigrant legal permanent resident), not born in Puerto Rico, and does not have parents who are U.S. citizens.

Other Risk Factors

Figure 6. Probability of Minimum Wage Violation by Other Characteristics (Relative to Reference Group), 2009-2022



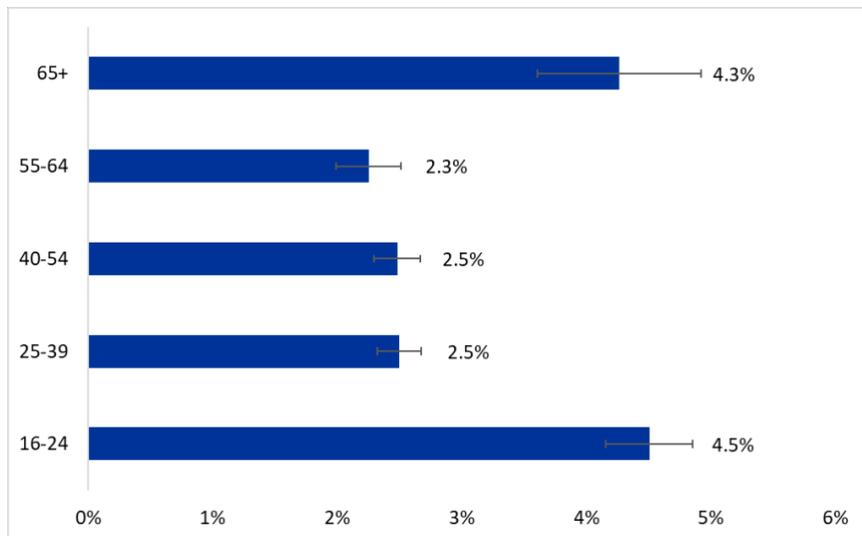
Note: all differences are statistically significant (95%).

Figure 5 shows that workers not paid by the hour were almost four times more likely (278%) to be paid less than the minimum wage (likely because they were paid in flat daily/weekly payments, by project, or by piece-rate). Unsurprisingly, non-unionized workers were more than three times as likely (219%) as unionized workers. Part-time workers, those working in the service sector, those without a high school diploma, unmarried workers, parents, and

those who lived outside metropolitan areas were also significantly more likely to suffer a minimum wage violation than their reference group.

Workers over 65 years of age and under 25 years were also significantly more likely to experience a minimum wage violation than workers in the middle age groups.

Figure 7. Probability of Minimum Wage Violation by Age Group, 2009-2022

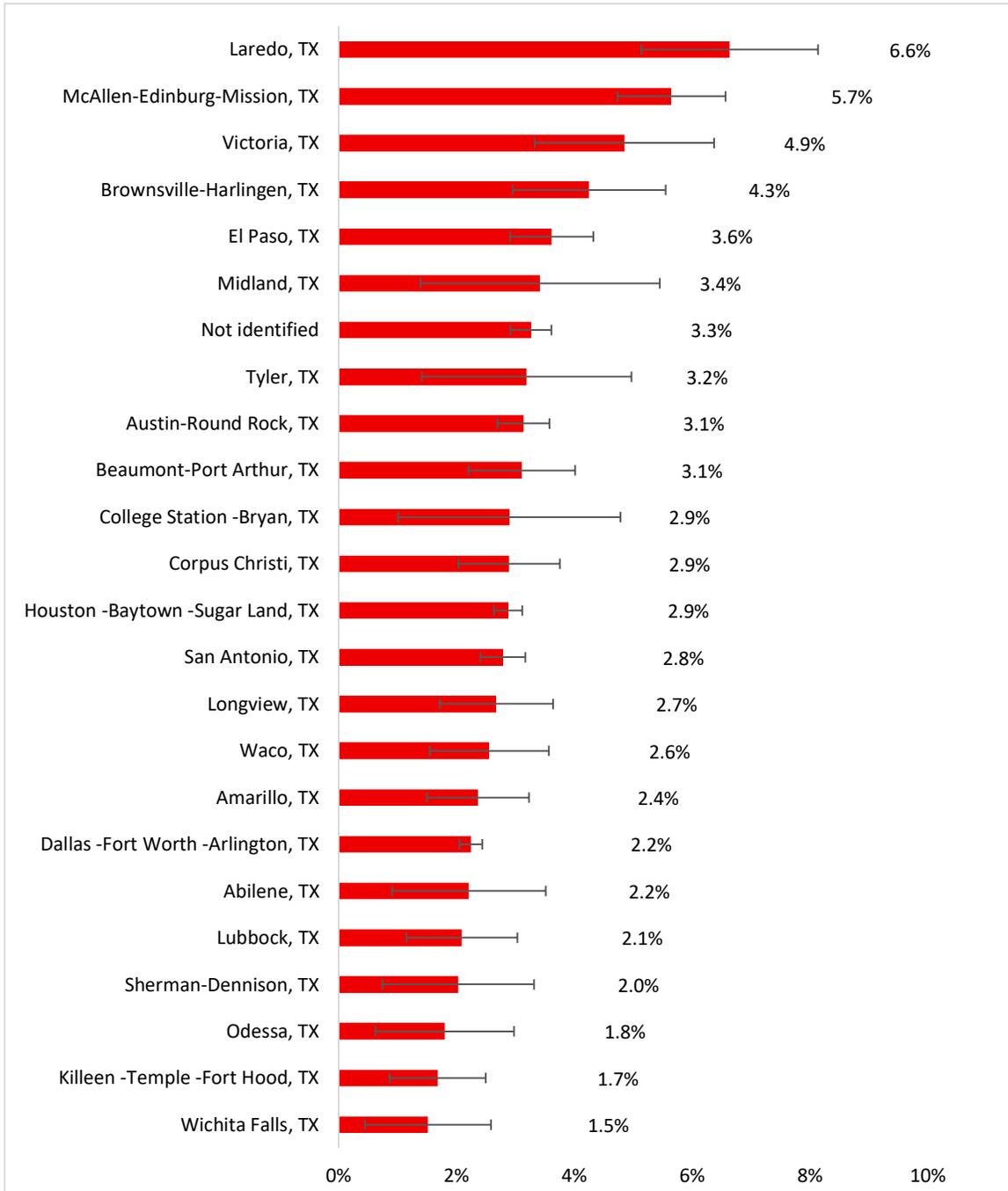


Note: the differences between the middle groups and the top and bottom groups are statistically significant (95%).

Minimum Wage Violation Rates by Geography

Eighty-nine percent of respondents indicate their metropolitan statistical area (MSA); eleven percent do not. Examining those who do, we find that four of the five highest-violation MSAs are on the border with Mexico.

Figure 8. Minimum Wage Violation Rates by Metro Area (2009-2022)



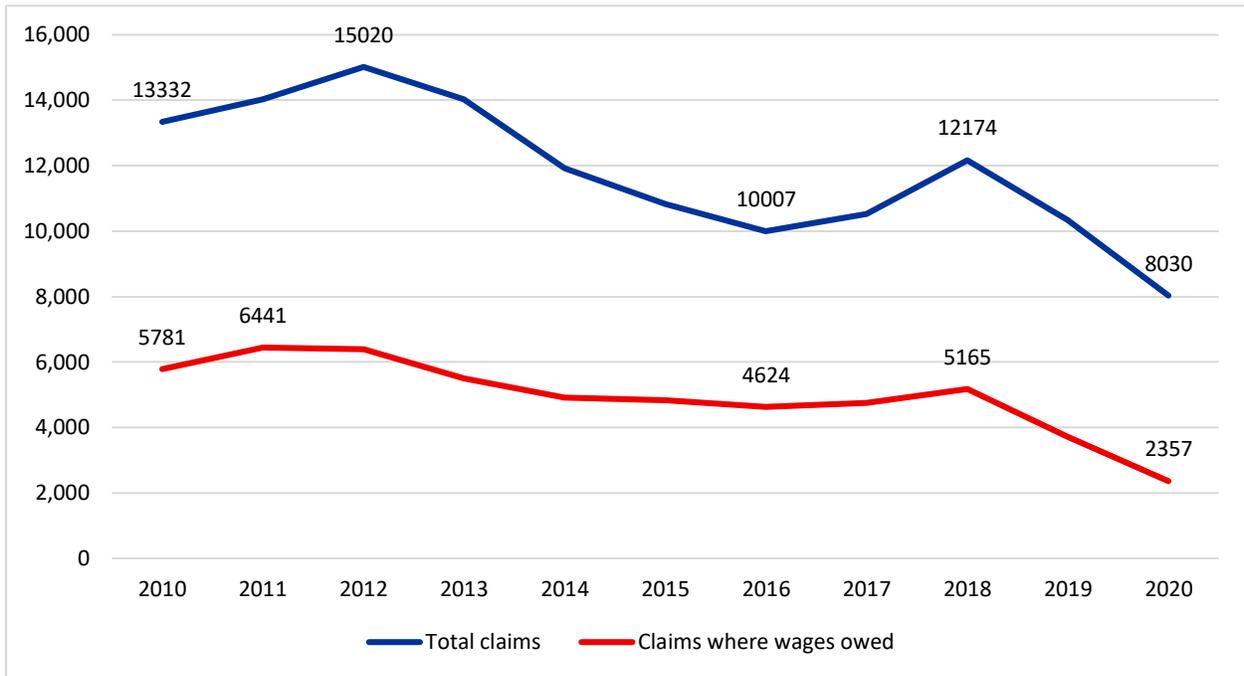
Note: Estimates represent predicted probabilities. 95% confidence intervals shown.

An Analysis of Texas Payday Law Enforcement

Enacted in 1989,⁴ the Texas Payday Law created a suite of worker protections in regard to unpaid wages, illegal pay deductions, and when and how wages are to be paid.⁵ When a worker is not paid wages as required by TPL, they have 180 days after the date the wages were due to file a claim. If TWC determines a claim is actionable the claim triggers an investigation, after which TWC issues an order dismissing the claim or ordering the payment of unpaid wages.⁶

In response to a public information request, the workplace justice lab@RU received data on all claims made under the Payday Act from 2008 through December 2020. For this study, claims were limited to those filed after July 24, 2009, i.e., the last federal (and state) minimum wage change. After removing 2,767 claims with potential data errors, a total of 136,420 claims filed from July 24, 2009 to December 31, 2020 were analyzed for this study.

Figure 9. Texas Payday Law Claims per Year (2010-2020)



As shown above, annual claims submitted to TWC under the Texas Payday Law hit a high in 2012 with over 15,000 claims before falling to 10,000 in 2016. After rising again in 2017 and 2018, total claims declined to a new low of 8,030 in 2020.

In line with the minimum wage violation findings on page 3 above, while annual Payday Law claims to TWC largely declined over the course of the study period, average wages ordered per claim

⁴ Richard R. Nelson, "State Labor Legislation Enacted in 1989," *Monthly Labor Review* (January 1990), 35-56. Accessed from <https://www.bls.gov/opub/mlr/>

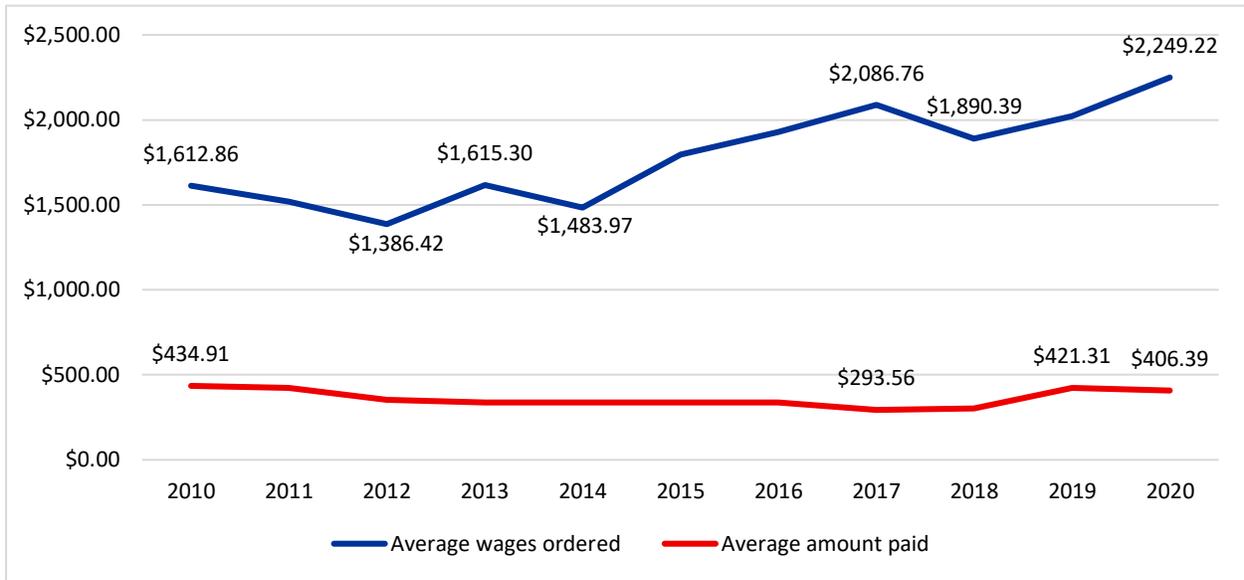
⁵ For more on the Texas Payday Law, see <https://www.twc.texas.gov/jobseekers/texas-payday-law>

⁶ Additionally, TWC may order an administrative penalty where the employer acted in bad faith in not pay wages or an employee acted in bad faith in bringing a wage claim. Either party may appeal TWC's decision. Tex. Labor Code §§ 61.051-054.

continued to rise during this period from \$1,613 in 2010 to \$2,249 in 2020 (see Figure 10 below). However, the average amount paid to workers during the same period declined slightly from \$435 to \$406. This suggests that, while violations against individual workers continue to worsen, TWC recovered even less money for aggrieved workers.

While nearly \$99 million in wages were ordered across more than 57,000 cases from 2010 to 2020, over \$78 million—or 80% of wages ordered—has yet to be received by workers. More than 39,000 claimants have not seen any portion of their ordered wages, yet nearly 17,000 of these claims are marked as being “closed” and “paid in full.”

Figure 10. Average Wages Ordered and Reported Amount Paid (Claims Where Wages Were Ordered), Texas Payday Law, 2010-2020



Of 288,941 unique issues across the 136,420 claims analyzed, 164,705 (57%) were determined in favor of the employer while 78,135 (27%) were in favor of the claimant. Of those 57% coded as in favor of the employer, 43% are coded as having violated the Payday Law and receiving a penalty warning. In those claims that include issues that received a penalty warning, 78.3% of ordered wages have not been paid.⁷

More than 10 percent of issues (30,919) were “disallowed,” including over 4,000 for being “not timely.” This is notable given the short statute of limitations under the law of 180 days.⁸

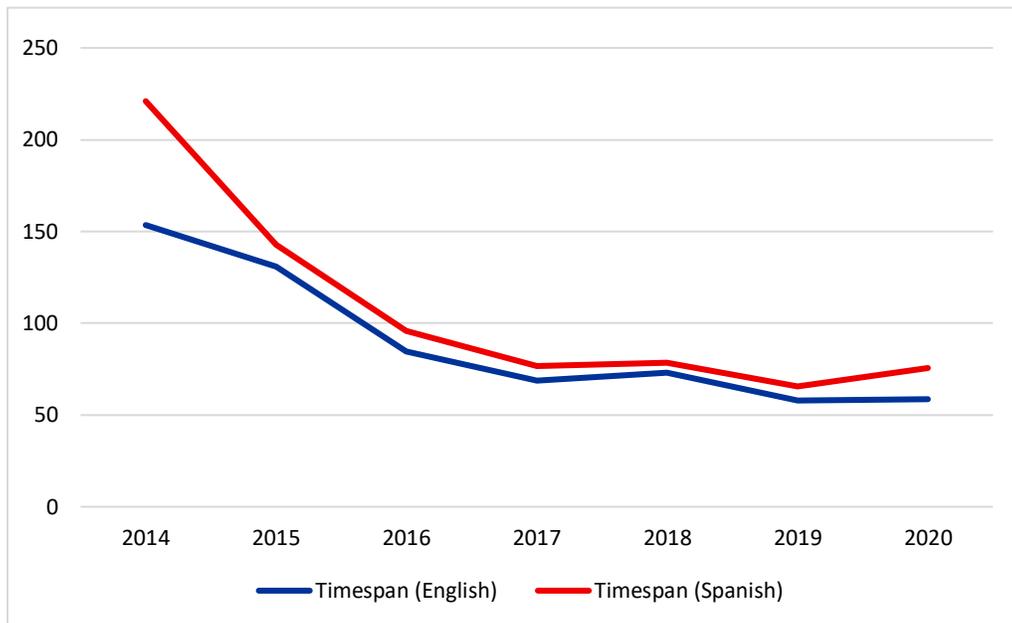
⁷ In an earlier version of this report, we stated that these cases received “nothing more than a warning.” That was because the code TWC uses in these cases reads: E141, “VIOLATION OF PAYDAY LAW – PENALTY WARNING.” TWC has since pointed out that in these cases, it provides a “notice of a first-time violation” and orders back wages to be paid but assesses no penalties. We reviewed the data and find that while this is true, 78.3% of ordered wages in these cases remain unpaid. This raises serious questions about the efficacy of issuing “penalty warnings” for first-time violators.

⁸ Tex. Labor Code § 61.051(c). In stark contrast, New York State provides a six year statute of limitations for wage claims. See NY Labor Law § 198(3).

Wage Theft in Texas

It should also be noted that just 2 percent of claims—or less than 2,800 in total over the study period—were filed in Spanish. Claims filed in Spanish on average took over 100 days to come to a determination, compared to 84 for those filed in English; while this finding is statistically significant ($p < 0.001$), most of the difference appears to be due to larger disparities in 2014, the first year Spanish status was tracked in the data. Although claims filed in Spanish also had modestly lower rates of collection, the difference was not significant at the $p = 0.05$ level. Even so, given that over 3.5 million Texans have limited English proficiency and nearly 30 percent of the Texas population speaks Spanish at home,⁹ more needs to be learned about why such a small percentage of workers are filing claims in Spanish.

Figure 12. Average Timespan from Filing Claim to Determination (English vs. Spanish Claims), Texas Payday Law, 2009-2020

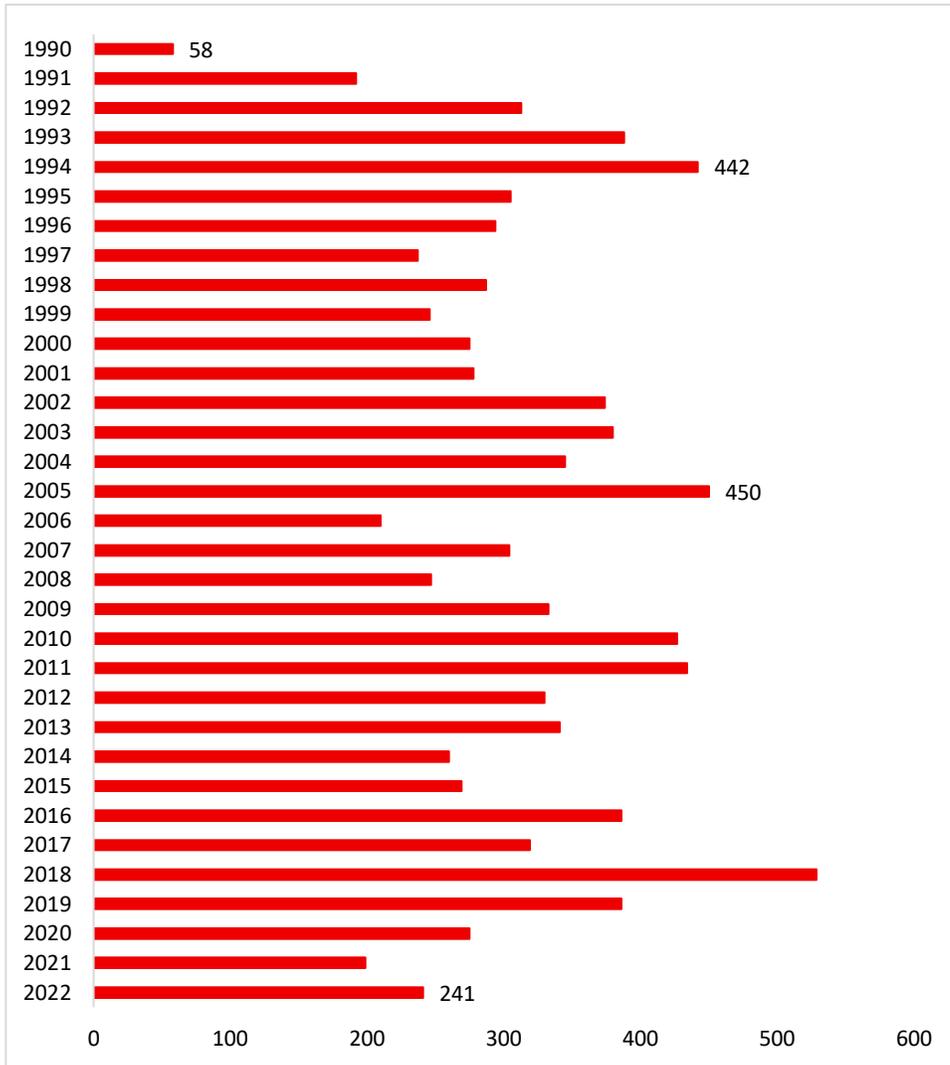


In addition to analyzing information for claims filed between July 2009 through Dec 2020, WJL@RU also analyzed TWC's database of active administrative liens, which includes lien data from 1990 to 2022. According to the TWC database, over 10,000 open liens initiated from Payday Law enforcement exist, with current delinquency amounts totaling over \$113 million. While TWC does note that the amounts shown may not reflect current delinquency rates, the depth of the issue further suggests the inability of Texas state government to effectively get stolen wages into the pockets of aggrieved workers.¹⁰

⁹ Migration Policy Institute, "Texas," accessed on June 14 2023 from <https://www.migrationpolicy.org/data/state-profiles/state/language/TX>.

¹⁰ "Texas Workforce Commission Wage and Hour Administrative Liens," Texas Workforce Commission, <https://origin.twc.texas.gov/wage-hour-liens>.

Figure 11. Active Administrative Liens by Year Opened, Texas Payday Law



Conclusion

In sum, minimum wage violations are pervasive in Texas and cost workers over \$12 billion over the last fourteen years. Minimum wage violations disproportionately affect low-wage workers who can least afford to be underpaid and demographic groups that are already vulnerable to other forms of exploitation (e.g., noncitizens, non-white workers, women). This report has detailed which industries, occupations, geographies, and demographic groups are most susceptible to wage theft and require more vigorous enforcement of the law. The second half of the report suggests the need for greater investment in more effective wage collections by the state enforcement agency, based on an analysis of the Texas Workforce Commission's enforcement of the Texas Payday Law.

TWC's vision is "to maximize the power of innovation and partnerships to boost superior business outcomes and realize a competitive advantage for all Texans in the global economy."¹¹ Building innovative partnerships with organizations such as Better Builder¹² that certify and actively monitor employers for compliance with all relevant wage and safety laws—along with securing OSHA and skills training for workers—would not only help to promote this vision of superior business outcomes through mitigating competition based on cost reduction, but would also help to serve TWC's mission "to promote and support a workforce system that creates value and offers employers, families, individuals, and communities the opportunity to achieve and sustain economic prosperity."¹³ It is our hope that these results may ultimately help to promote stronger wage-hour laws and more strategic, better resourced enforcement in Texas that may help to achieve and sustain economic prosperity for all Texans.

¹¹ Texas Workforce Commission, "About Texas Workforce," accessed on June 15 2023 from <https://www.twc.texas.gov/about-texas-workforce#mission>

¹² See <https://www.betterbuildertx.org/en/>

¹³ Texas Workforce Commission, "About Texas Workforce."

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About wjl@RU

The [Workplace Justice Lab@Rutgers University](#) (wjl@RU) exists to address economic inequality through supporting and strengthening grassroots organizing and democratic governance. We do this through building dynamic communities of learning and practice, carrying out cutting edge research, and offering specialized training and in-depth one-on-one consultations.

At the lab, we go beyond talking about what government should do, to focusing on how government should do it. Through our strengthening labor standards enforcement program, we work to reimagine the public enforcement of workers' rights laws. By proactively targeting the sectors with the worst problems and involving those directly impacted in enforcement, we help agencies realize the intended impact of innovative labor standards legislation.

Texas graphic on front cover from Vecteezy.com

Methodological Appendix

Measuring the scope and depth of these forms of “wage theft” is difficult. No single data source systematically and reliably tracks the incidence of wage theft and records the precise amounts of money that are not being paid. Early studies of minimum wage compliance used data provided voluntarily by employers to the Bureau of Labor Statistics (e.g., Zucker 1973), but employer-reported data is not reliable, as employers who violate the law cannot be trusted to report that information to government agencies.

Workers can report wage theft by filing lawsuits and/or lodging complaints with federal, state, and local enforcement agencies. But lawsuits are often too expensive for minimum-wage workers and the costs of litigation frequently exceed the amounts of back pay owed. Complaints are also problematic measures because the workers who are more likely to be exploited are also more likely to be unaware of their right to complain (whether due to language barriers, lack of information and knowledge, or fear of retaliation, termination, or deportation). Lawsuits and the complaints government agencies receive thus provide inaccurate and unreliable portraits of the actual number of violations. We must therefore turn to alternative methods to more accurately detect and measure violations. Survey data on hours and earnings are invaluable in this regard, as they enable us to estimate the true underlying incidence wage violations indirectly.

Most useful is the Current Population Survey’s Merged Outgoing Rotation Groups (CPS-MORG) data, which the U.S. Department of Labor’s Wage and Hour Division uses to identify “priority industries” for investigations and which remains the top choice of every social scientist who has sought to develop national or industry-specific estimates of FLSA noncompliance since the 1970s.¹⁴

The CPS-MORG data has many advantages: it is gathered via extensive interviews with around 60,000 households per month; it is representative at the state and national levels (unlike other survey data, such as the Survey of Income and Program Participation [SIPP]); and its individual-level responses permit us to estimate earnings and minimum wage violations relatively easily. The biggest downside is measurement error, as with any survey.

The methodological approach employed here is consistent with previous research.¹⁵ A few key points to keep in mind:

Wage variable

For hourly wages, we use variables that include wages earned from overtime, tips, and commissions (OTC) for both hourly and nonhourly workers.¹⁶ Wage estimates are therefore conservative over-estimates that effectively downward-bias the estimated minimum wage violation rates. This is preferable to the alternative, however, which excludes OTC for hourly workers while including it for nonhourly workers (for whom different sources of wages are not distinguished). Efforts to estimate and subtract OTC from nonhourly workers adds unknown quantities of additional measurement

¹⁴ Ashenfelter and Smith 1979; Ehrenberg and Schumann 1982; Sellekaerts and Welch 1984; Trejo 1991, 1993; Fry and Lowell 1997; Weil and Pyles 2005; U.S. Department of Labor 2014; ERG 2014; Galvin 2016; Cooper and Kroeger 2017.

¹⁵ In particular, Galvin 2016; U.S. Department of Labor 2014; Cooper and Kroeger 2017.

¹⁶ <http://ceprdata.org/cps-uniform-data-extracts/cps-outgoing-rotation-group/>.

See also Cooper and Kroeger’s 2017 preference for this method of estimating wages.

error to this key variable, and is not recommended.¹⁷ To ensure our estimates of wage violations are conservative *underestimates*, we follow Cooper and Kroeger (2017) in taking the higher of the reported wage (hourly wage or weekly pay divided by hours worked) for hourly workers who reported both.

Calculating minimum wage violations

Minimum wage violations are dichotomous measures of whether an individual's estimated hourly wage was lower than the applicable legal minimum. We use Texas' applicable statutory minimum wage rate as of the date effective. We are grateful to Ben Zipperer for sharing the latest data from Kavya Vaghul and Ben Zipperer, "Historical state and sub-state minimum wage data," which can be found here: <https://github.com/benzipperer/historicalminwage/releases/tag/v1.2.0>.

Exemptions

In keeping with our effort to generate conservative estimates, we erred on the side of excluding broader categories of workers when in doubt. Workers exempt from the Fair Labor Standards Act (FLSA) and Texas' minimum wage law are excluded from the analysis whenever CPS responses permit occupational distinctions. But not all exemptions can be distinguished. Workers exempt from the minimum wage who were unable to be identified include (from Texas law): persons with disabilities; inmates; family members; employees of amusement or recreational establishments having seasonal peaks; noncontributors to unemployment compensation fund; and employees in dairy farming. Exemptions we could not identify from the FLSA: Employees who are casual babysitters or companions to ill or aged persons unable to care for themselves; employees of weekly, semiweekly and daily newspapers of less than 4,000 circulation; those with "partial" minimum wage exemptions; agricultural employees who work for an employer not having used more than 500 man-days of agricultural labor during any quarter of the preceding year, are family members, community hand harvest pieceworkers, or engaged in the range production of livestock; companions for the elderly; and live-in domestic employees. Additional occupations we were unable to identify and exempt from overtime: drivers and drivers' helpers making local deliveries and paid on the basis of trip rates, if the government finds that this arrangement has the general effect of reducing hours worked to the statutory straight-time maximum; employees of motor carriers subject to regulation by the Secretary of Transportation; seamen on American vessels; outside buyers of poultry and dairy products; employees who process maple sap; resident houseparents to children who are orphans working at nonprofit educational institutions; and several "partial" exemptions.

Survey weights and standard errors

All analyses, including population estimates, use survey weights suggested by Davern et. al (2007), which are necessary given the sampling method of the CPS.

Measurement error

There is reason to believe that measurement error in the CPS may downward-bias the estimates of minimum wage violations.¹⁸ First, despite going to great lengths to reach them, both Hispanics (Latinx) and undocumented immigrants are underrepresented in the CPS.¹⁹ Because workers in these

¹⁷ U.S. Department of Labor 2014.

¹⁸ For an excellent discussion of the advantages and limitations of using the CPS data to estimate minimum wage violations given the existence of measurement error and other issues, see U.S. Department of Labor 2014, Appendix B.

¹⁹ McKay 1992. As Bernhardt et al. 2009 write: "standard surveying techniques—phone interviews or census-style door-to-door interviews—rarely are able to fully capture the population that we are most interested in: low-wage workers who may be hard to identify from official databases, who may be vulnerable because of their immigration status, or who are reluctant to take

groups are at higher risk of experiencing minimum wage violations, the estimates of violations reported here should be considered conservative estimates.²⁰ Second, in Bollinger’s study of measurement error in the CPS, he finds a “high overreporting of income for low-income men” driven by “about 10% of the reporters who grossly overreport their income,” thus potentially biasing estimates downward even further.²¹ Third, CPS data have a shortage of low-wage workers and an excess of high-wage workers relative to comparable survey data like SIPP; one effect of this imbalance could be to underestimate minimum wage violations.²² Roemer does find that the CPS reaches more “underground” workers than other large-scale surveys and is less biased than alternatives.²³ But given the high rates of violation discovered in the Bernhardt et al. 2009 innovative survey of hard-to-reach workers in the “informal” labor market—much higher than the estimates presented here—there is reason to suspect that these findings underestimate the prevalence of minimum wage violations across the board.²⁴ These considerations notwithstanding, the fact that measurement error surely exists recommends using caution when working with the point estimates reported.

To address measurement error and conduct sensitivity tests, following ERG (2014), Galvin (2016), and Cooper and Kroeger (2017):

- Exclude unemployed and self-employed workers
- Exclude all observations of workers not specifying hourly/nonhourly status
- Exclude observations of nonhourly workers with weekly earnings less than \$10
- Exclude observations of workers with hourly wages less than \$1
- Exclude proxy respondents
- Exclude respondents with imputed hours
- Violation only if less than applicable minimum wage minus \$0.25 (as sensitivity test)

The relative violation rates remain extremely similar in all sensitivity tests.

Low-wage workers

Low-wage workers are operationalized as all eligible workers in the bottom quintile of the wage distribution each year.

Data

We use CPS ORG data, Economic Policy Institute. 2022. Current Population Survey Extracts, Version 1.0.33, <https://microdata.epi.org>.

part in a survey because they fear retaliation from their employers. Trust is also an issue when asking for the details about a worker’s job, the wages they receive, whether they are paid off the books or not, and their personal background” (56).

²⁰ McKay 1992; Bernhardt et al. 2009; U.S. Department of Labor 2014.

²¹ Bollinger 1998.

²² Roemer 2002; U.S. Department of Labor 2014.

²³ Roemer 2002.

²⁴ Bernhardt et al. 2009.

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