



A Heist in Plain Sight: Wage Theft in Iowa

Methodology Appendix

To arrive at the most reliable and accurate estimates possible, we used a multi-pronged estimation approach that contextualized and validated the results of the other methods. Each method has its own shortcomings, due to the limitations of the government's data collection, so the use of multiple methods allowed us to build confidence in an estimated range for the number of wage theft occurrences and their associated dollar amount. The following methods each contribute to the overall findings.

I. Minimum wage violation estimates

The U.S. Department of Labor (DOL) reported in 2014 that an estimated 3.5% to 4% of minimum wage-eligible workers experience minimum-wage violations each year, representing between 35% and 70% of weekly earnings.¹ Studies in the following years validated that estimate range, with the EPI's Cooper & Kroeger finding in 2017 that 4.1% of covered workers experienced minimum wage violations.² They also found a violation rate of 17.2% among covered low-wage workers, with the average violation costing each worker \$3,300 per year.

Cooper & Kroeger's method analyzed the Current Population Survey Outgoing Rotation Group (CPS ORG) microdata. To bolster total respondent numbers and improve estimate accuracy, we use 2017-2019 CPS ORG data from Iowa respondents. After removing respondents that were not in the labor force and those not covered by federal or state minimum wage laws, we identified workers whose reported wages and hours worked indicated they were paid less than the minimum wage. For the majority, the minimum wage was \$7.25, but differences in the minimum wage based on occupation or status were accounted for according to state law. Due to the reporting structure of the CPS ORG (reported wages combine bonuses, overtime pay, and commissions) that prevents a precise estimation, we used a conservative approach to estimating as detailed by Cooper & Kroeger.

Because CPS uses a stratified sampling design,³ we applied the respondent weights to estimate the total number of Iowa workers who experienced minimum-wage violations. As a comparison and validation point, we looked to Cooper & Kroeger's results from the same data source for other Midwestern states (Ohio, Illinois and Michigan). Finally, we compared the respondents' wages to their minimum wage under state law (see Iowa Code Chapter 91D) to determine the average underpayment among those experiencing minimum wage violations.⁴

This was multiplied by our estimate of the total number of workers experiencing violations to estimate the amount lost from Iowa workers due to minimum wage violations.

This method is strong because it relies exclusively on recent CPS data, which is considered the “gold standard” for employee wage data. However, it measures only one form of wage theft: minimum-wage violations. There also are limitations due to the survey structure, such as the aggregation of overtime pay and commission/bonuses, which prevent this data source from providing deeper insight into wage theft. Also, Iowa has a low minimum wage compared with surrounding states, making it less likely that workers would agree to work for such a low wage. As a result, the percent of workers experiencing minimum wage violations may be smaller than in those states.

II. Overtime violation estimates

Unfortunately, the CPS cannot be used to estimate the incidence of overtime violations in the state. This is due to the structure of their overtime pay reporting, which lumps together overtime, tips and commissions into one category. However, it is possible to combine CPS data, Iowa Workforce Development (IWD) wage claim data and DOL Wage and Hour Division (WHD) enforcement data to estimate the extent of overtime violations in Iowa.

We first made a key assumption that victims of wage theft report violations of minimum-wage and overtime laws at approximately the same rate. This is a conservative assumption, since experts who work with wage theft victims believe the rate of reporting for overtime violations is likely lower than for minimum-wage violations. We totaled the number of minimum-wage violations reported to IWD and DOL and compared it to our CPS minimum-wage violation estimates to arrive at a reporting rate of 3%.

Similarly, we totaled the number of overtime violations reported to DOL (IWD does not enforce overtime regulations, since they are federal laws only). We divided this total by 3% to estimate the true number of Iowa overtime violations per year.

To estimate the average size of overtime violations among Iowa workers, we returned to CPS ORG Iowa respondents for 2017-2019. We removed respondents who worked more than one job because it would be impossible to determine which hours worked were overtime hours. We also removed all non-hourly workers and all workers not covered by federal overtime laws. Using this subset of respondents, we calculated the number of hours worked over 40 per week. We divided the reported ‘OTC’ (overtime, tips and commission) per week by the overtime hours to calculate the lower end of each respondent’s hourly wage during overtime work.

Finally, we compared the calculated hourly overtime wage to each respondent’s regular hourly rate. If the calculated rate was not at least 1.5 times the usual hourly wage, this was

considered an overtime violation. We averaged and annualized all overtime violations and applied sampling weights to estimate the mean of \$10,673 per year.

We multiplied the estimated number of overtime violations per year, 46,940, by the estimated average overtime violation to arrive at our overall estimate of the annual overtime violation cost to Iowa workers each year of \$501 million.

This method relied on two critical assumptions: (1) that the reporting rate for minimum-wage and overtime violations are approximately the same, and (2) that the overtime violations found among Iowa CPS respondents are representative of overtime violations throughout the state workforce. We minimized the risk of over-reporting overtime violations in regard to both assumptions. Even though we suspect the reporting rate for overtime violations to be lower than that of minimum-wage violations, we assumed equal rates for this analysis. We also treated reports of OTC in the survey as overtime pay exclusively, indicating the estimated average overtime violation is lower than the true average.

III. Overall wage theft estimate

To glean further use from the CPS, we estimated overall wage theft based on the ratio of minimum-wage and overtime violations to total wage violations. It is nearly impossible, due to lack of data, to estimate the cost of wage theft from wage violations such as illegal deductions and tip violations. However, we have a reliable picture of their role in overall wage theft.

In Bernhardt et al.'s 2009 report, the authors found that violations of minimum-wage and overtime laws constituted 82% of the total wage theft cost. We checked the validity of this proportion for Iowa by isolating minimum wage and overtime violations in the Iowa enforcement data from IWD and DOL. Out of all back wages recovered by IWD and DOL from 2017-2019, 81.9% were for violations of minimum-wage and overtime laws.

We summed our estimated costs of minimum-wage and overtime violations, \$741.6 million, and added 18% to account for other types of wage theft violations. This resulted in our overall wage theft cost estimate of \$904.4 million.

IV. Tax revenue loss estimates

To estimate the effect of wage theft on tax revenue, we created an approximate income distribution of Iowa workers affected by wage theft. In this model, 50 percent of wage theft affects workers in the lowest fifth of earners, 35 percent for the next fifth of earners, 10 percent for the middle fifth of earners, and 5 percent for the next highest fifth. This is based on analysis of individuals exhibiting minimum wage and overtime violations in the Iowa respondent base of the CPS ORG from 2017-2019.

Given this income distribution, we used effective tax rates from the 2018 “Who Pays?” analysis by the Institute for Tax and Economic Policy⁵ (ITEP) to estimate the loss in Iowa sales and income tax revenues by income group. For example, the lowest fifth of earners in Iowa pay about 6.4 percent of their incomes in sales and excise tax. The estimated revenue loss from these workers, representing half of the \$904.4 million in wage theft per year, is \$452.2 million (half of total wage theft) times 6.4 percent, or around \$29 million. This process is followed for each income group and its effective tax rate, then summed to estimate the total revenue loss.

We also estimate the loss of unemployment insurance, Social Security and Medicare contributions from employers due to wage theft. For 2018-2019, the average employer rating for unemployment insurance contributions in Iowa was 1.25%.⁶ During that period, employer contribution rates for Social Security and Medicare were 6.2% and 1.45%, respectively.

Finally, we estimated the loss of federal income tax revenue due to wage theft in Iowa. Using the income quintiles provided in the 2018 ITEP analysis, we calculated the number of individuals within each quintile based on IRS income tax data.⁷ With this more precise assignment, we calculated effective income tax rates for each quintile and then used the effective rates to estimate the overall loss in federal income tax revenue.

V. Wage theft through forced arbitration estimates

To further contextualize these estimates, we turned to a 2021 NELP data brief by Baran & Campbell concerning wage theft through forced arbitration.⁸ The brief describes how employers use the tactic of forced arbitration to make it more difficult for workers to fight back against wage violations. When workers are denied the ability to take their claims before a judge or a state agency, and instead must struggle with internal employer bureaucracy, they are far less likely to file or follow through with their claims. Forced arbitration clauses also routinely prohibit workers from filing or joining class action lawsuits.

Baran & Campbell used several data sources — CPS microdata for overall employment numbers, the U.S. Government Accountability Office’s (GAO) rates of FLSA coverage, WHD compliance data and Economic Policy Institute arbitration reporting — to estimate the number of low-wage workers subject to forced arbitration in each state. They also estimated the number of low-wage workers who experienced wage theft but then abandoned their claims and the total unrecovered amount withheld from these workers per year. We use the Iowa calculations from the report to compare to the bigger picture of wage theft in the state.

VI. Overall wage theft estimates using 2009 Bernhardt et. al survey results

A 2009 National Employment Law Project (NELP) study by Bernhardt et. al, “Broken Laws, Unprotected Workers,” used a respondent-driven sampling approach to survey low-wage workers in the three largest U.S. cities: New York, Chicago, and Los Angeles.⁹ Although this

report was released 13 years ago, it is the most recent large-scale survey of workers in the U.S. questioned about wage theft. The study team found that 68% of low-wage workers experienced some form of wage violation in a given week.

Iowa Policy Project's 2012 "Wage Theft in Iowa" report used the results of this study to estimate that wage theft cost low-wage workers in Iowa approximately \$600 million annually.¹⁰ The method was a simple extrapolation of the NELP results to Iowa; it assumed that the proportion of low-wage workers experiencing wage theft was the same in Iowa as in the cities surveyed and applied that percentage to data on Iowa low-wage workers and their earnings.

To update these estimates, we used the total Iowa nonfarm workforce number from the U.S. Bureau of Labor Statistics' Current Employment Statistics (BLS CES) and the share of Iowa workers receiving a poverty wage or below from the Current Population Survey (CPS), as reported by the Economic Policy Institute (EPI). Poverty wages are defined as family incomes that fall below the federal poverty guideline for each respective family type. We multiplied the workforce size by the share of workers in poverty to get the total number of Iowa workers at or below a poverty wage. At the time of this report, the most recent EPI CPS analysis for the share of Iowa workers in poverty was for 2018. This number of low-wage Iowa workers was then multiplied by 68% to produce the number of Iowa workers experiencing wage theft.

Bernhardt et. al reported that the wage violations represented an estimated 15% of worker earnings as a lower bound. To estimate the direct economic impact of wage theft on Iowa workers, we multiply the number of estimated victims by 15% of the 2018 federal poverty guideline for a household of four.¹¹ The 2018 guideline was \$25,100, resulting in an estimate of \$3,765 in yearly wages lost by low-wage Iowa workers due to wage violations. We multiplied the number of Iowa workers in poverty, 246,000, by the yearly loss due to wage theft to arrive at a total wage theft estimate of \$926 million.

In addition to being based on dated survey results, this estimation method has a few other shortcomings. The survey sample achieved by NELP was arrived at through respondent-driven sampling rather than a random sample, which is more prone to bias due to the structure of social networks (although the authors took steps to address this).¹² Additionally, the sample was collected in three large cities with socio-economic differences from Iowa that may affect how well the sample represents Iowa workers.

A further limitation is our inability to replicate the eligible sample population. The NELP survey recruited "front-line" (non-managerial) workers at least 18 years of age who worked in "low-wage industries" as their primary job — labeled "low-wage workers" as short-hand. We are unable to estimate the total number of comparable Iowa workers, so we use the poverty-wage cutoff as a proxy.

Although we cannot be sure how accurate this approximation is, we believe it to be conservative, as the poverty guidelines represent a highly restricted standard of living. In addition, this method and our results using Iowa-specific data provided close numbers — the difference between the estimates was just \$22 million, or about 2%.

VII. Examining trends in wage violations by industry and demographics

In addition to estimating the extent of wage theft in Iowa, we examined trends in wage violations by looking more closely at violation and compliance data from IWD and WHD. We used 2017-2019 wage claim data from IWD, obtained by Common Good Iowa through an open records request, to study wage violations claims by date and industry. This required some removal of duplicated cases from the database provided. In all cases but one, the duplicated cases contained the same basic information and one of the case entries had full case information and an end date. The case copies with incomplete case details were removed. There was a single duplicated case where both entries had full, matching details except for the final dollar amount for back wages received. The difference between the reported amounts was only \$4, so the case copy with the larger dollar amount was removed.

We also examined trends in wage-violation cases by industry for the U.S. DOL's WHD compliance data for 2017-2019. We could not use more recent years of compliance data because they are incomplete, as described above. WHD adds cases to the compliance database after completion, so the available 2020-2021 data are currently sparse.

Finally, we studied trends in minimum-wage violations in the CPS ORG. We used logistic regression to model whether the respondent experienced a violation on a number of variables, including age, gender, marital status, veteran status, date of survey completion, race, ethnicity and citizenship status. We used the provided CPS ORG survey weights for the regression models and considered the statistical significance of the resulting odds ratios using 95% confidence intervals.

¹ U.S. Department of Labor 2014. <https://www.dol.gov/sites/dolgov/files/OASP/legacy/files/WageViolationsReportDecember2014.pdf>

² Cooper and Kroeger, Economic Policy Institute 2017. <https://www.epi.org/publication/employers-steal-billions-from-workers-paychecks-each-year/>

³ U.S. Bureau of Labor Statistics and U.S. Census Bureau 2019. <https://www2.census.gov/programs-surveys/cps/methodology/CPS-Tech-Paper-77.pdf>

⁴ Iowa Division of Labor 2022. <https://www.iowadivisionoflabor.gov/idol/wage-hour/fag>

⁵ "Who Pays? A Distributional Analysis of the Tax Systems in All 50 States, 6th Edition." Institute for Tax and Economic Policy, 2018. <https://itep.sfo2.digitaloceanspaces.com/itep-whopays-iowa.pdf>

⁶ Kelly, Iowa Workforce Development 2018. <https://www.iowaworkforcedevelopment.gov/unemployment-tax-rate-table-unchanged-2019>

⁷ SOI Tax Stats – Historic Table 2, Internal Revenue Service. <https://www.irs.gov/statistics/soi-tax-stats-historic-table-2>

⁸ Baran and Campbell, National Employment Law Project 2021. <https://www.nelp.org/publication/forced-arbitration-cost-workers-in-low-paid-jobs-9-2-billion-in-stolen-wages-in-2019/>

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- ⁹ Bernhardt et. al, National Employment Law Project 2009. <https://www.nelp.org/publication/broken-laws-unprotected-workers-violations-of-employment-and-labor-laws-in-americas-cities/>
- ¹⁰ Gordon et. al, Iowa Policy Project 2012. <https://www.iowapolicyproject.org/2012docs/120827-wagetheft.pdf>
- ¹¹ Office of the Assistant Secretary for Planning and Evaluation 2018. <https://aspe.hhs.gov/topics/poverty-economic-mobility/poverty-guidelines/prior-hhs-poverty-guidelines-federal-register-references/2018-poverty-guidelines>
- ¹² Gile and Handcock, *Sociological Methodology* 2010. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3437336/>