



RESEARCH BRIEF | JULY 2026

Benchmarks for Evaluating Compliance with Protected Time Off Laws

The ability to take paid time off from work when faced with illness, to get needed medical care, or to provide caregiving for a family member is a crucial tool for enhancing the wellbeing of working people, their families, and the broader public. Workers who have access to such paid sick leave, or PSL, are more likely to take time off from work when sick ([DeRigne et al. 2016](#); [Piper et al. 2017](#); [Schneider 2020](#)) and access more preventative health care ([Peipins et al. 2012](#); [DeRigne et al. 2017](#)). Workers with PSL also report better self-rated health, lower levels of psychological distress, and improved sleep quality ([Stoddard-Dare et al. 2018](#); [Collins et al. 2020](#); [Swanson-Varner & Nadon 2024](#)). The benefits of PSL extend beyond workers and their immediate families to reduce the spread of contagious illness in the population ([Kumar et al. 2013](#); [Pichler & Ziebarth 2017](#)). These broad-based benefits provide compelling evidence of the public goods provided by PSL.

However, despite these well-documented benefits, in the United States, federal law does not guarantee workers the right to paid sick leave. In the absence of federal action, over the past twenty years 18 states and nearly two dozen cities and counties have enacted and implemented laws that provide workers with paid protected time off from work to be used in the event of illness, caregiving, and other related purposes ([National Partnership for Women & Families 2026](#)). Collectively, state-level standards are estimated to cover 50 million workers ([Maclean et al. 2025](#)). Between 2014 and 2019 alone, the share of workers covered by such standards rose from 1% to 28% ([Pomeranz et al. 2022](#)).

Existing state and local standards generally follow a similar model across jurisdictions, requiring employers (with some tailoring of the requirements by employer size) to fund earned time off, generally accruing at the rate of 1 hour of earned time off for

every 30 hours worked. While historically referred to as “Paid Sick Leave” ordinances given their coverage of paid time off due to illness, these standards generally allow for a range of related uses, including care for a sick family member, receipt of medical care, as well as absences associated with an employee or a family member’s domestic violence, sexual assault, or stalking. This broader set of qualified uses is important and recognizes the multiple sources of work-life conflict faced by working people. However, we focus specifically on paid sick leave in this report.

There is substantial evidence that this set of standards has improved workers’ access to PSL. A series of rigorous studies finds that following implementation, access to PSL increases by as much as 50% ([Schneider 2020](#); [Callison & Pesko 2022](#); [Woods et al. 2023](#)). Overall, while just 63% of private sector jobs offered paid sick leave in 2011, prior to the implementation of most PSL standards, the share rose to 77% by 2023. Recent evidence suggests that the effects of PSL mandates on coverage “spillover” to benefit workers in jurisdictions without mandates by shaping corporate practice ([Schneider & Harknett 2025](#)).

The Challenge of Non-Compliance

However, the full realization of the value of PSL hinges on workers actually being able to use the benefit. If employers, by policy or in practice, make it difficult or impossible for workers to use their mandated paid leave, then such non-compliance can effectively undermine the public’s aims. Unfortunately, there is growing evidence of significant non-compliance:

- Surveys of workers in jurisdictions with PSL mandates find that nearly 40% still report not having access to paid sick leave following implementation of the law ([Woods et al. 2023](#)).
- Four in ten hourly service-sector workers in California experienced violations of their mandated access to PSL, either in not having access at all or in employer practices that violated the law ([Schneider et al. 2024](#)).
- Among workers who report access to PSL, large shares report working while sick because they were “afraid of getting in trouble,” (42%) “could not find shift coverage” (37%) or were “pressured by a supervisor” (13%) to work ([Kuhlman & Schneider 2023](#)).

One challenge of effective enforcement is that PSL is a “conditional right”: eligibility for use hinges on a

worker having a qualifying event – such as being sick. Employers with very low rates of paid time off for sick leave may then attempt to make a “healthy worker” defense, arguing that low rates of leave taking signal low rates of qualifying events rather than barriers to use. New York City’s Department of Consumer and Worker Protection’s (DCWP) experiences in this domain are illustrative.

In investigating worker reports of potential PSL violations, DCWP examines payroll records. Such investigations have at times indicated that some workers at the firm or establishment did receive paid time off for sick leave – but the percentage of workers who were paid for sick leave is so low that it appears to corroborate employee reports of a lack of meaningful access to paid sick leave. When presented with DCWP’s findings, employers may offer various defenses for low use of paid sick leave, such as:

- Employees didn’t need to use sick leave.
- Employees voluntarily chose to work through illness.
- Employees preferred to schedule medical appointments on non-work time.

This dynamic is not specific to New York City and rather represents a broad challenge to the effective enforcement of the dozens of PSL laws around the country. To make sense of the rate of PSL usage in employer payroll records, agencies need outside data on the expected incidence of paid sick leave qualifying events. To date, this crucial benchmarking information has been missing.

Estimating Sick Leave Taking in the NHIS

This study investigates employees’ use of sick leave by analyzing responses to the National Health Interview Survey (NHIS), an annual survey conducted by the U.S. Centers for Disease Control and Prevention (CDC). The NHIS surveys approximately 27,000 adults each year. The key survey questions for this study concern access to PSL and missed work. Specifically, respondents are asked whether their main job provides PSL and, separately, the number of workdays they missed due to their own illness, injury, or disability in the past year.

To evaluate sick leave use, we focus on private-sector employees surveyed in the 2023 NHIS (11,657) and estimate the percentage of workers among those with

PSL who reported missing at least one workday due to their own illness, injury, or disability in the 12 months preceding the survey.

Incidence of Paid Leave for Illness, Injury, or Disability

Finding 1: Half of employees with access to paid sick leave miss at least one workday due to their own illness, injury, or disability each year.

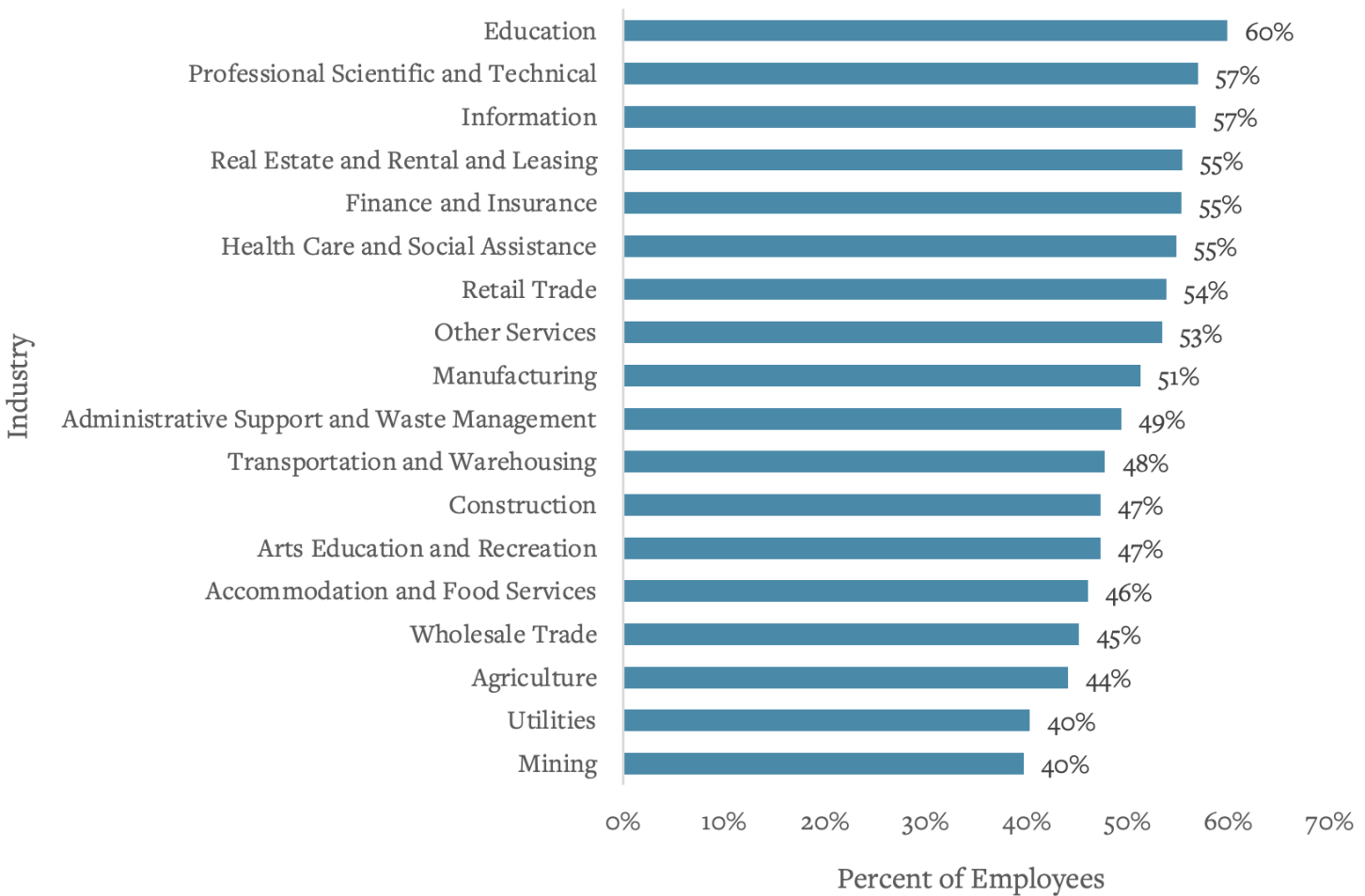
Among employees with access to paid sick leave, 50% reported missing at least one workday due to their own illness, injury, or disability within the last year.

Finding 2: Missed work due to illness, injury, or disability is common, regardless of job characteristics.

Significant percentages of employees with access to paid sick leave miss work due to their own illness, injury, or disability regardless of job characteristics, including industry, occupation, and hours worked.

By industry (Figure 1), employees most likely to miss work due to their own illness, injury, or disability were in education (60%), followed by professional, scientific, and technical services (57%) and information (57%). Employees in mining (40%) were the least likely to miss work.

Figure 1. Percent of employees with access to paid sick leave who missed work due to their own illness, injury, or disability, by industry

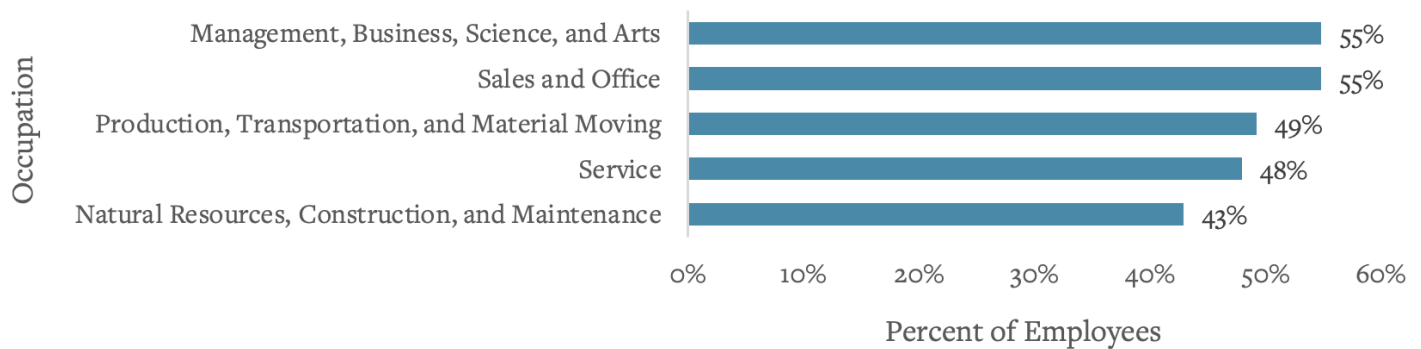


Source: National Health Interview Survey, 2023.
Note: Two industries (Public Administration and Management of Companies and Enterprises) are excluded due to sample size.

By occupation (Figure 2), employees across all five major categories were similarly likely to miss work due to their own illness, injury, or disability, ranging from 43% for natural resources, construction, and maintenance occupations to 55% for management, business, science, and arts occupations.

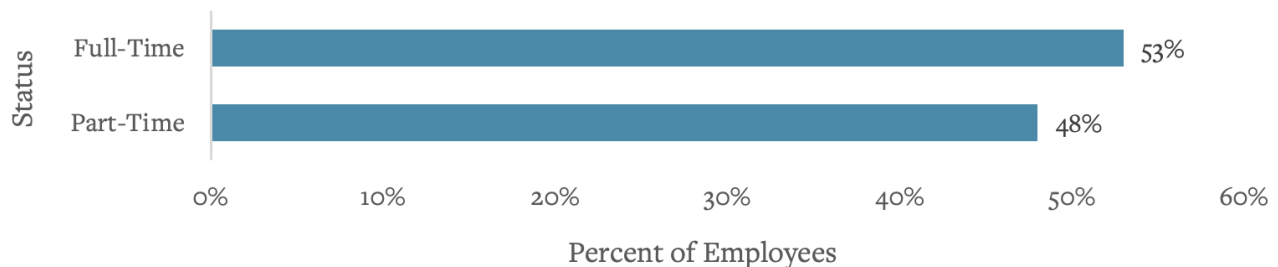
By hours worked (Figure 3), 53% of full-time employees and 48% of part-time employees with access to paid sick leave missed work due to their own illness, injury, or disability.

Figure 2. Percent of employees with access to paid sick leave who missed work due to their own illness, injury, or disability, by occupation



Source: National Health Interview Survey, 2023.

Figure 3. Percent of employees with access to paid sick leave who missed work due to their own illness, injury, or disability, by full-time vs. part-time status



Source: National Health Interview Survey, 2023.

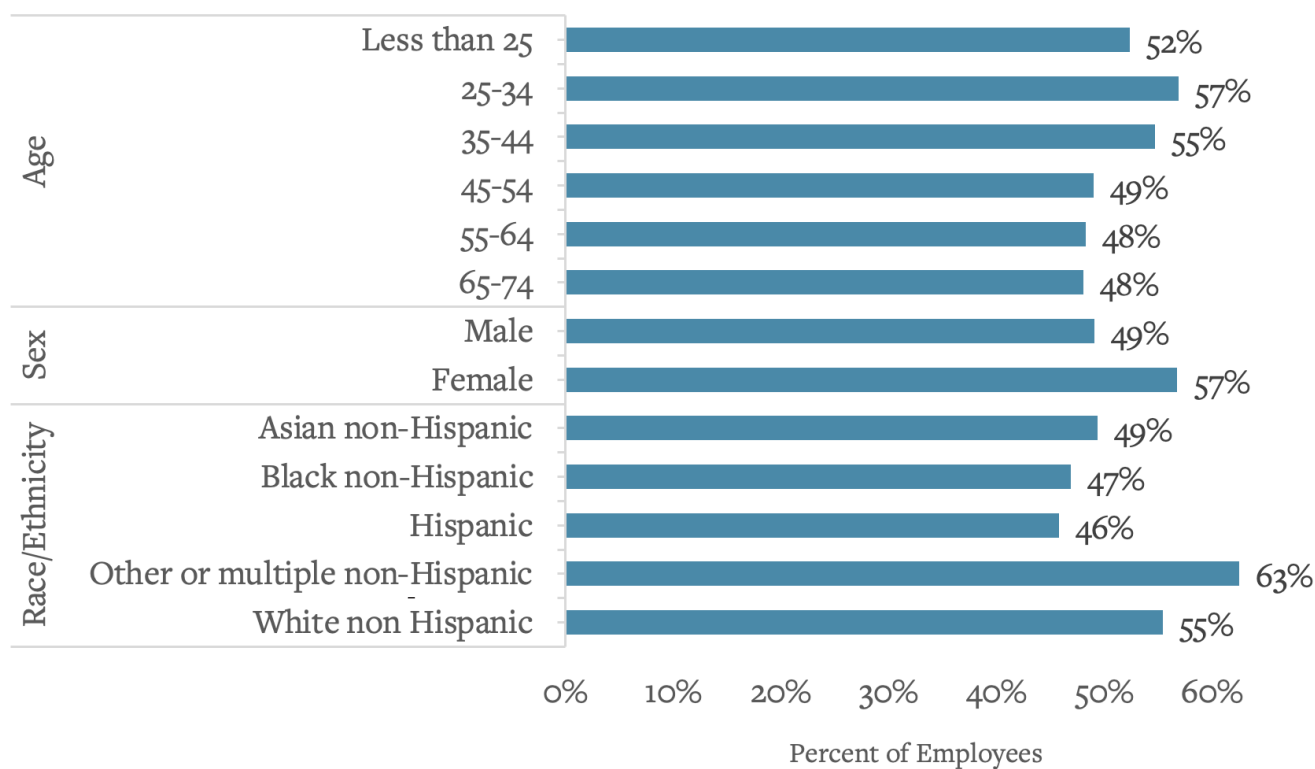
Note: “Full-Time” defined as 30 or more hours per week.

Finding 3: Missed work due to illness, injury, or disability is common, regardless of demographic characteristics.

In 2023, significant percentages of employees with access to paid sick leave missed work due to their own illness, injury, or disability, regardless of their

demographic characteristics (Figure 4), including self-reported age, sex, and race/ethnicity. To the extent that there are differences by demographics, they may be partly driven by differences in the industry and occupational compositions of employment across groups.

Figure 4. Percent of employees with access to paid sick leave who missed work due to their own illness, injury, or disability, by age, sex, and race/ethnicity



Source: National Health Interview Survey, 2023.

The key take-away from this analysis is that the share of workers who miss work due to own illness, injury, or disability is remarkably stable across industries, occupations, and demographic groups. We find no evidence consistent with the idea that there is any type of job or demographic group in which employees with access to paid sick leave rarely or never need

to miss work due to their own illness, injury, or disability. Rather, it is common for employees with access to paid sick leave to miss work due to their own illness, injury, or disability, regardless of industry, occupation, full-time or part-time status, age, sex, or race/ethnicity.

Implications for Enforcement of the Law

The finding that the need to use sick leave is nearly universal, with limited variation by demographics or job characteristics, has implications for investigation and enforcement. If the percentage of employees who use paid sick leave is significantly below the industry average (as shown in Figure 1 on page 3), the employer is likely violating the Law.

A practical method for performing this comparison is detailed in Appendix C. In brief, the method consists of calculating the percentage of employees who should be expected to use sick leave at an employer (based on industry and the number of weeks each employee worked) and comparing it to the percentage of employees who actually used paid protected time off at the employer during the period under investigation. It's important to emphasize, however, that the industry averages we use in this method underestimate the true percentage of employees we would expect to use leave at an employer that is compliant with the Law, likely by a large margin. As a result, our method is only able to identify cases where the employer has severely suppressed its employees' ability to use paid sick leave.

This likely underestimate arises from several features of the NHIS, which is the data source we used to calculate the industry averages.

1. The NHIS only includes questions about employees' use of sick leave for their own illness, injury, or disability, which is a subset of all protected reasons to use leave under most protected paid time off laws. Use of leave across all protected reasons is necessarily higher.
2. The NHIS does not capture partial days of work missed for injury, illness, or disability which many laws allow. Use of leave that includes partial days should similarly be higher.

3. Many NHIS respondents who indicated they have access to paid sick leave may be covered by employer policies that do not meet the robust standards required under the Law, or work for employers that do not always adhere to their own policies, depressing missed days of work within the industry averages.
4. The NHIS asks for current access to paid sick leave and, separately, days of work missed due to illness, injury, or disability in the past 12 months; however, a respondent with current access to paid sick leave may not have had continuous access to it for the past 12 months (e.g., due to breaks in employment, changes in employer policies, or job changes), or may not recall all days of work missed. This means that our calculation of the industry averages, derived from this survey data, underestimates how often we should actually expect an employee to miss work.

For all of these reasons, the true percentage of employees who would need to use PSL at an employer in a covered jurisdiction for qualifying events is very likely substantially higher than the averages shown here.

These factors further support the caution that the benchmark we have developed is very conservative. It follows that if an employer's records show that employees' actual use of protected time off falls below even this benchmark, this would provide very strong evidence that the employer has illegally and severely prevented use of protected time off among its employees.

The universality of employees' need for sick leave shown in this study should be persuasive in countering employer defenses that protected time off is neither wanted nor needed based on the nature of its jobs or the people it employs. Rather, if an employer's records show low use of leave, the overwhelming likelihood

is that its employees are attending work while sick, missing or delaying preventive medical evaluations or treatments, failing to provide care to ill family members, or missing work to care for themselves or a family member without receiving any pay for the time off—all of which are contrary to the requirements of the Law.

To evaluate whether an employer offers a compliant protected time off benefit, agencies can – among other investigative steps – calculate employees’ usage rates from payroll records for the period under investigation. Agencies can then compare these “actual” protected time off usage rates to the percentage of employees expected to use sick leave in that industry. If there are low actual usage rates compared to expected usage rates, and agencies have other evidence employees had problems accessing protected time off, this evidence together argues for non-compliance.

A tool for facilitating this kind of calculation – Protected Time Off Usage Compliance Checker - was created by DCWP. Agencies, employers, and other stakeholders who wish to calculate sick leave usage rates against the relevant national benchmarks discussed in this report can find the tool at nyc.gov/dcwp.

Authors

Mike Papadopoulos

Labor Economist

NYC Department of Consumer and Worker Protection
mpapadopoulos@dcwp.nyc.gov

Daniel Schneider

Malcolm Wiener Professor of Social Policy and Professor of Sociology

Harvard University

dschneider@hks.harvard.edu

Acknowledgements

This research was supported by grants from the Bloomberg Center for Cities at Harvard University and Harvard Impact Labs. We thank them for their support and acknowledge that the findings and conclusions in this report are those of the author(s) alone and do not necessarily reflect the opinions of these institutions.

An earlier version of this publication was released by the NYC Department of Consumer and Worker Protection as “[Benchmarks for Evaluating Compliance with NYC’s Protected Time Off Law](#).”

Suggested Citation

Papadopoulos, Mike and Daniel Schneider. 2026. “Benchmarks for Evaluating Compliance with Protected Time Off Laws.” Shift Project research brief.

Appendices

Appendix A:

Supplemental Analysis of Access to Paid Sick Leave and Missed Work Due to Illness, Injury, or Disability from the National Health Interview Survey

Table A1 - Part 1. Percent of employees with paid sick leave and percent of employees with and without paid sick leave who missed at least one day of work for their own illness, injury, or disability, by demographic and job characteristics

		All Employees			Employees With PSL		Employees Without PSL	
		Sample	Percent With PSL	Margin of Error (+/-)	Percent Who Missed Work	Margin of Error (+/-)	Percent Who Missed Work	Margin of Error (+/-)
All Workers		11,657	71%	1%	50%	1%	44%	1%
Age	Less than 25	1,038	54%	3%	52%	4%	50%	5%
	25-34	2,640	76%	2%	57%	2%	51%	4%
	35-44	2,634	77%	2%	55%	2%	41%	4%
	45-54	2,169	75%	2%	49%	2%	41%	4%
	55-64	2,079	76%	2%	48%	2%	39%	4%
	65-74	928	57%	3%	48%	4%	29%	4%
	75-84	150	34%	8%	36%	13%	33%	9%
	85 and older	19	59%	22%	36%	30%	17%	24%
Sex	Female	5,665	70%	1%	57%	2%	47%	2%
	Male	5,992	72%	1%	49%	1%	41%	2%
Race/ Ethnicity	Asian non-Hispanic	820	82%	3%	49%	4%	34%	8%
	Black non-Hispanic	1,193	72%	3%	47%	3%	41%	5%
	Hispanic	2,074	64%	2%	46%	3%	36%	4%
	Other or multiple non-Hispanic	296	70%	5%	63%	7%	69%	10%
	White non-Hispanic	7,274	72%	1%	55%	1%	47%	2%
Hours	Full-time	9,622	79%	1%	53%	1%	48%	2%
	Part-time	2,035	40%	2%	48%	3%	38%	3%
Occupation	Management, Business, Science, and Arts	5,082	85%	1%	55%	1%	43%	4%
	Natural Resources, Construction, and Maintenance	585	48%	4%	43%	6%	40%	6%
	Production, Transportation, and Material Moving	1,925	67%	2%	49%	3%	43%	4%
	Sales and Office	2,304	70%	2%	55%	2%	46%	4%
	Service	1,622	50%	2%	48%	3%	46%	3%

Source: National Health Interview Survey, 2023.

Notes: “Full-time” is an average workweek of 30 hours or more. “Margin of Error (+/-)” is margin of error for the 95% confidence interval. Occupation and Industry samples exclude a small number of workers who do not fall into any of the shown categories (e.g., military and related occupations, “other” responses).

Table A1 - Part 2. Percent of employees with paid sick leave and percent of employees with and without paid sick leave who missed at least one day of work for their own illness, injury, or disability, by demographic and job characteristics

		All Employees			Employees With PSL		Employees Without PSL	
		Sample	Percent With PSL	Margin of Error (+/-)	Percent Who Missed Work	Margin of Error (+/-)	Percent Who Missed Work	Margin of Error (+/-)
All Workers		11,657	71%	1%	50%	1%	44%	1%
Industry	Accommodation and Food Services	761	45%	4%	46%	5%	47%	5%
	Administrative Support and Waste Management and Remediation	487	60%	4%	49%	6%	39%	7%
	Agriculture	125	51%	9%	44%	12%	32%	11%
	Arts Education and Recreation	221	64%	6%	47%	8%	34%	10%
	Construction	804	57%	3%	47%	4%	39%	5%
	Education	434	76%	4%	60%	5%	38%	10%
	Finance and Insurance	788	92%	2%	55%	4%	37%	11%
	Health Care and Social Assistance	1,940	76%	2%	55%	3%	49%	5%
	Information	265	85%	4%	57%	6%	45%	16%
	Management of Companies and Enterprises	15	80%	20%	54%	27%	100%	0%
	Manufacturing	1,367	79%	2%	51%	3%	49%	6%
	Mining	65	72%	11%	40%	14%	77%	21%
	Other Services	501	58%	4%	53%	6%	39%	7%
	Professional Scientific and Technical	1,296	86%	2%	57%	3%	44%	7%
	Public Administration	35	78%	14%	61%	18%	70%	32%
	Real Estate and Rental and Leasing	212	75%	6%	55%	8%	44%	12%
	Retail Trade	1,246	68%	3%	54%	3%	47%	5%
	Transportation and Warehousing	574	67%	4%	48%	5%	38%	7%
	Utilities	111	92%	5%	40%	10%	43%	29%
	Wholesale Trade	273	79%	5%	45%	7%	47%	14%

Source: National Health Interview Survey, 2023.

Notes: “Full-time” is an average workweek of 30 hours or more. “Margin of Error (+/-)” is margin of error for the 95% confidence interval. Occupation and Industry samples exclude a small number of workers who do not fall into any of the shown categories (e.g., military and related occupations, “other” responses).

Appendix B: Measuring Missed Days of Work Due to Illness, Injury, or Disability

Table B1 summarizes the National Health Interview Survey questions and answer choices and the inclusion criteria used in this study.

Table B1. National Health Interview Survey Study Inclusion Criteria

Metric	Questionnaire Text	Possible Responses	Criteria
Employment status	Last week, did you work at a job or business for pay?	• Yes • No • Don't know • Refused	Respondents were asked about sick leave or missed work if they answered "Yes."
Class of worker	Which of these BEST describes your MAIN job or work situation?	• Employee of a PRIVATE company for wages • A FEDERAL government employee • A STATE government employee • A LOCAL government employee • Self-employed in OWN business, professional practice or farm • Working WITHOUT PAY in a family-owned business or farm • Refused • Don't know	Only respondents who reported they were an "Employee of a PRIVATE company for wages" were included in the study.
Access to paid sick leave	Regarding your job or business, is paid sick leave available if you need it?	• Yes • No • Don't know • Refused	Only respondents who answered "Yes" or "No" were included in this study, with "No" responses only used to calculate the % of workers with paid sick leave and for Table A1.
Missed work due to illness, injury, or disability	During the past 12 months, about how many days of work did you miss because you had an illness, injury, or disability? Do not include family or paternity/maternity leave.	• Numbers from 0 to 365 • Don't know • Refused	Only respondents who provided a number are included in this study.

Source: National Health Interview Survey, 2023.

Appendix C:

Determining Whether Actual Use of Protected Time Off is Significantly Lower than Expected Use of Protected Time Off During an Investigation

This appendix details the steps to compare use of protected time off at an employer to industry averages to evaluate compliance with the Law. Specifically, if the percentage of employees who used protected time off at an employer (as calculated from the employer's payroll records) is significantly lower than what should be expected based on the average rate of missed work due to illness, injury, or disability among employees in the industry who have access to paid sick leave (as calculated from the NHIS), then the employer is very likely to be violating the Law.

Step 1. Calculate Expected Use of Protected Time Off at the Employer

The percentage of employees who should be expected to have used protected time off at an employer that is compliant with the Law ("expected use") can be calculated from the industry averages shown in Figure 1 on page 3.

Use the following substeps to perform the Step 1 calculation.

- i. Convert the annual probability of missing work due to illness, injury, or disability from Figure 1 to a weekly probability. The formula for this conversion is:

$$r_1 = 1 - (1 - r_{52})^{\frac{1}{52}} \quad (1)$$

where r_1 is the weekly probability, and r_{52} is the annual probability.

For example, in the accommodation and food services industry, the annual probability shown in Figure 1 is 46%. Plugging in this value, the weekly probability is 1.178%:

$$r_1 = 1 - (1 - 0.46)^{\frac{1}{52}} = 0.01178 \quad (2)$$

This calculation is based on the "constant hazard model," which is a long-standing feature of research in many health-related fields. It assumes that an employee's risk of missing work due to illness, injury, or disability is the same in each week of their tenure.¹

Table C1 shows the weekly probability for each industry that can be obtained using this expression.

1. Lawless, J. F. (2003). *Basic concepts and models. In Statistical models and methods for lifetime data* (2nd ed., pp. 1–47). John Wiley & Sons.

Table C1. Annual and weekly probability of missing work due to illness, injury, or disability, by industry

Industry	Annual Probability	Weekly Probability
Accommodation and Food Services	46%	1.178%
Administrative Support and Waste Management and Remediation	49%	1.287%
Agriculture	44%	1.109%
Arts Education and Recreation	47%	1.213%
Construction	47%	1.213%
Education	60%	1.747%
Finance and Insurance	55%	1.524%
Health Care and Social Assistance	55%	1.524%
Information	57%	1.610%
Manufacturing	51%	1.362%
Mining	40%	0.978%
Other Services	53%	1.441%
Professional Scientific and Technical	57%	1.610%
Real Estate and Rental and Leasing	55%	1.524%
Retail Trade	54%	1.482%
Transportation and Warehousing	48%	1.250%
Utilities	40%	0.978%
Wholesale Trade	45%	1.143%

Notes: Annual probabilities are as shown in Figure 1 on page 3. Weekly probabilities are derived using equation (1).

ii For each employee, use the weekly probability obtained from equation (1) to calculate the cumulative probability that the employee will have missed work due to illness, injury, or disability in at least one of the weeks in which they appear in the employer's payroll records. The calculation is as follows:

$$r_w = 1 - (1 - r_1)^w \quad (3)$$

where r_w is the probability that an employee appearing in the employer's records for w weeks will have missed work due to illness, injury, or disability at least once, and r_1 is as in equation (1).

For example, given the 1.178% weekly probability of missing work due to illness, injury, or disability in the accommodation and food service industry, as obtained from equation (2), if an employee appears in the employer's records for 48 weeks, the cumulative probability is 43%. This is calculated as:

$$r_{48} = 1 - (1 - 0.01178)^{48} = 0.4338 \quad (4)$$

iii Take the average of the values obtained for each employee from equation (3). The result is the percentage of employees we should observe using protected time off within the employer's payroll records if the employer is compliant with the Law. This calculation is as follows:

$$\hat{r} = \frac{\sum_{i=1}^n r_{wi}}{n} \quad (5)$$

where $\hat{r}$ is the percentage of employees who would be expected to have used protected time off if the employer is compliant (i.e., the "expected use"), n is the number of employees appearing in the employer's payroll records, and r_{wi} is the probability that each employee, i , will have used leave during the w weeks they appear in the employer's payroll records.

For example, if an accommodation and food service employer has five employees who worked 10, 58, 26, 52, and 75 weeks, respectively, during the period under investigation, we should expect to observe in the employer's records that 38% of the employees used protected time off during this period (in other words: two out of the five employees).

Plugging in these values to equation (5), we have:

$$\begin{aligned} \hat{r} &= (r_{10} + r_{58} + r_{26} + r_{52} + r_{75})/5 \\ &= (0.1117 + 0.4971 + 0.2652 + 0.4600 + 0.5888)/5 \\ &= 0.3846 \end{aligned} \quad (6)$$

For reasons described in the study text, this is a severe underestimate of the true percentage of employees who should be expected to use protected time off if the employer is compliant with the Law. Still, it provides a practical, if conservative, method for identifying workplaces where use of protected time off has been illegally suppressed.

For brevity, note that equations (1), (3), and (5) can also be condensed into a single expression:

$$\hat{r} = \frac{\sum_{i=1}^n 1 - (1 - r_{52})^{\frac{w_i}{52}}}{n} \quad (7)$$

where all terms are as above.

Step 2. Calculate Actual Use of Protected Time Off at the Employer

The proportion of employees who used protected time off during the period under investigation, r , can be calculated as:

$$r = \frac{n_u}{n} \quad (8)$$

where n_u is the number of employees whose payroll records show any payment for paid protected time off during the period under investigation, and n is the total number of employees appearing in payroll records during the period under investigation.

Step 3. Compare Actual and Expected Use of Protected Time Off at the Employer

In cases where actual use of protected time off from Step 2, denoted r , is less than expected use from Step 1, denoted $\hat{r}$, a standard statistical analysis can be performed to determine the probability that the difference between actual and expected use is due to random chance alone.²

Use the following substeps to perform the Step 3 calculation.

i Calculate the standard error for expected use, defined as:

$$SE = \sqrt{\frac{\hat{r}(1 - \hat{r})}{n}} \quad (9)$$

where n is the number of employees who appear in the employer's payroll records.

ii Calculate the Z-statistic, defined as:

$$Z = \frac{r - \hat{r}}{SE} \quad (10)$$

iii Look up the "p-value" obtained for Z within a standard normal distribution (e.g., by using the NORM.S.DIST function in Excel). In this application, the p-value is the probability that the difference between actual and expected use of protected time off is a result of random chance alone.

For example, if an employer has 250 employees within the scope of an investigation, with expected use ($\hat{r}$) calculated at 52%, and actual use (r) calculated at 40%, the standard error for expected use (SE) is 0.03160, the Z-statistic is 3.79777, and the probability that actual use would be this far below expected use due to random chance alone is 0.007%.

By convention, a probability less than 5% is considered statistically significant and a probability less than 1% is considered highly statistically significant. In this example, the result is highly statistically significant. This means that there is virtually no chance that the low use of protected time off at the employer is due to random chance alone.

2. Casella, G., & Berger, R. L. (2002). *Hypothesis testing*. In *Statistical inference* (2nd ed., pp. 373–413). Duxbury.