



# Who Is the Low-Wage Workforce?

Technical Appendix

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## Data Sources

This feature uses data from the Current Population Survey (CPS) Annual Social and Economic Supplement (ASEC) 2022 and the American Community Survey (ACS) 2017–21 five-year sample, the latter of which was accessed through the Integrated Public Use Microdata Series (IPUMS) database.<sup>1</sup>

## Low-Wage Definition

We define low-wage workers as those earning less than two-thirds of the median wage, following a commonly used, relative threshold used for characterizing low-wage work relative to the full wage distribution. For calculating this threshold, we first compute the median wage of the full sample of prime-age workers using the CPS, and then multiply the resulting figure by two-thirds.<sup>2</sup>

Note that while other ways of defining low-wage work have been considered in practice and the research literature, for this data feature we use 2/3 of the median wage of all prime-age workers as our preferred definition and threshold for clarity, simplicity, and comparability with other applications.<sup>3</sup>

## Low-Wage Sample

Our sample of low-wage workers is made up of individuals ages 25–54, what economists refer to as prime-age workers, in the labor force who were employed at some point during the prior year. The sample includes both full- and part-time workers.

## Variable Construction and Analysis

We create a wage variable for each worker in our low-wage sample. For individuals who do not report their earnings as an hourly wage (A\_HRSPAY), we calculate an hourly wage equivalent by dividing their annual wage and salary income (WSAL\_VAL by the number of

recorded hours they work during the prior calendar year. We calculate the normal weeks worked during the year by multiplying the usual number of hours worked in a week (HRSWK) by the recorded number of weeks worked over the year (WKSWORK). Of these four variables, only hours worked in a week was top-coded, at 99. These results were left as is. Given that the ASEC provides annual estimates, we did not do any wage or income smoothing. We then assign to each worker an indicator for ‘low-wage’ depending on whether their wage is below or above the threshold described above.

Our estimates of the racial makeup of the low-wage workforce are constructed with CPS variables PRDTRACE and PEHSPNON. Our educational breakdown is calculated using the CPS categorical variable A\_HGA. Information on pension provision and health insurance is calculated via the categorical variables PENPLAN and NOW\_PRIV, respectively. All of these calculations use the appropriate weight.<sup>4</sup>

## Industry Analysis

The last graphic in the set, showing the concentration of low-wage workers by industry, uses the American Community Survey 2017–21 five-year sample. While it would otherwise be preferable to use the same data source for all of the analyses for consistency, the ACS provides information using the 2017 North American Industry Classification System (NAICS) industry codes.<sup>5</sup> The NAICS classifications provide a greater level of specificity than the Industry Category Codes of the CPS. Further, the NAICS codes are more consistent across time and are more easily translatable for those interested in cross-country industry comparisons.<sup>6</sup> These are given with the IPUMS ACS variable `INDNAICS`.

The ACS data do not include hourly wage amounts, so we calculate these by dividing individuals’ annual wage and salary amounts by their total number of hours worked, calculated as usual number of hours worked in a week (UHRSWORK) multiplied by weeks worked last year (`WKSWORK2`). As this is a categorical variable detailing a range of hours (i.e., “27–39 weeks”), we treat all workers as if they worked at the middle point of this range (i.e., “33”). All dollar amounts across the five-year ACS sample are automatically adjusted for inflation to reflect 2021 dollars. These ACS calculations use the appropriate person-level weight (`PERWT`).

The names listed in the data feature are the first sub-division of the NAICS categories (i.e., “Arts, Entertainment, and Recreation”). These names are not the umbrella categories

in this framework (i.e., “Arts, Entertainment, and Recreation, and Accommodation and Food Services”) or the most specific (i.e., “Bowling centers”) but strike a balance between the general and the specific that is most easily comprehensible. Where subcategories do not exist but umbrella categories do (i.e., “Wholesale trade”), the name for the umbrella category is used. We concentrate our analysis on the concentration of low-wage workers as opposed to the frequency of low-wage workers within these industries, in part because these industries are not equal in size.

## Notes

- <sup>1</sup> Sarah Flood, Miriam King, Renae Rodgers, Steven Ruggles, J. Robert Warren, and Michael Westberry, *Integrated Public Use Microdata Series, Current Population Survey, Version 10.0*, 2022, <https://doi.org/10.18128/D030.V10.0>.
- <sup>2</sup> We decided to use the CPS ASEC data because of the extra information it provides about health insurance coverage and pension coverage.
- <sup>3</sup> “Wage levels,” OECD Data, accessed, July 20, 2023, <https://data.oecd.org/earnwage/wage-levels.htm>; Claus Schnabel, “Low-Wage Employment,” 2021, <https://wol.iza.org/articles/low-wage-employment/long>.
- <sup>4</sup> For all calculations using A\_HRSPAY, the person-level weight A\_ERNLWT was used in our analysis. All other calculations used the person-level weight MARSUPWT.
- <sup>5</sup> See *Where Is the Low-Wage Workforce?* technical appendix, <https://www.workrisenetwork.org/working-knowledge/where-low-wage-workforce>.
- <sup>6</sup> The Industry Category Codes (as provided by the CPS IPUMS variable IND) change at irregular periods, sometimes as short as four years. For further detail about the codes listed provided by the CPS in their most recent iteration, see IPUMS, “Industry Codes: 2020 Onwards (2017 Census Classification Scheme),” 2020, [https://cps.ipums.org/cps/codes/ind\\_2020\\_codes.shtml](https://cps.ipums.org/cps/codes/ind_2020_codes.shtml). For a discussion about the greater potential afforded by the NAICS for cross-country comparison and regularity, Washington Department of Revenue, “SIC and NAICS Codes,” Washington State Department of Revenue, 2022, accessed July 18, 2023, <https://dor.wa.gov/about/statistics-reports/sic-and-naics-codes>.

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For more information on this project, see *Who Is the Low-Wage Workforce?*



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