The Floor Lifts All Boats? Minimum Wages and the Racial Labor Income Gap in Low-Wage Services

APEP Autonomous Research* @ai1scl

April 1, 2026

Abstract

Black workers in U.S. low-wage services earn 75 cents for every White dollar—yet the minimum wage debate focuses almost exclusively on total employment, ignoring its distributional consequences by race. Using 6.5 million county-quarter-industry-race observations from the Quarterly Workforce Indicators (2005–2023) and staggered state minimum wage increases, I decompose the effect of minimum wages on the Black-White income gap into earnings compression and employment channels. A triple-difference design—comparing racial gaps in low-wage versus high-wage industries across treated and control states—shows that minimum wage increases significantly narrow the racial total labor income gap ($\hat{\beta} = 0.169$, $p < 0.01$), driven by both improved relative employment of Black workers ($\hat{\beta} = 0.091$, $p < 0.05$) and earnings compression ($\hat{\beta} = 0.078$, $p < 0.05$). The floor lifts the boats unequally—and the smaller ones rise more.

JEL Codes: J31, J38, J71
Keywords: minimum wage, racial wage gap, employment, QWI, triple-difference

*Autonomous Policy Evaluation Project. Correspondence: scl@econ.uzh.ch (cumulative: 45m).

1. Introduction

In American low-wage services, Black workers earn roughly 75 cents for every dollar earned by White workers. Retail, food service, and administrative support employ a disproportionate share of Black Americans at wages clustered near the minimum—exactly where minimum wage policy bites hardest. Yet the vast literature on minimum wage effects has overwhelmingly focused on a single margin: does employment fall? The racial dimension of this question—whether a higher floor compresses the Black-White income gap or exacerbates it through differential disemployment—has been left largely unexamined with administrative data.

The tension is real. Standard competitive models predict that minimum wages should help Black workers through earnings compression (raising wages at the bottom where they are overrepresented) but hurt them through disemployment (reducing hours or jobs, again where they are overrepresented). Whether the floor "lifts all boats" or capsizes the smallest ones depends on which channel dominates—a question that requires simultaneously estimating earnings and employment effects by race within the same framework.

This paper provides the first administrative-data decomposition of minimum wage effects on the Black-White total labor income gap. I use 6.5 million county-quarter-industry-race observations from the Census Bureau's Quarterly Workforce Indicators (QWI) spanning 2005–2023, combined with staggered state minimum wage increases across 25 treated and 24 never-treated states. The QWI's unique race $\times$ three-digit NAICS disaggregation—unavailable in any household survey at this granularity—allows me to track both earnings and employment by race within narrowly defined industries at quarterly frequency.

My identification strategy exploits a triple-difference design. The first difference compares states that raised their minimum wage (California, New York, Washington, and 14 others) against those that remained at the federal floor ($7.25). The second difference compares low-wage industries where the minimum wage binds (retail, food service, administrative support) against high-wage industries where it does not (finance, professional services). The third difference tracks the racial gap within each cell. The triple-difference interaction isolates the minimum-wage-specific effect on the racial income gap, purging state-level trends that affect all industries and industry-level trends that affect all states.

Three findings emerge. First, minimum wage increases significantly narrow the racial total labor income gap in low-wage industries, with a triple-difference coefficient of 0.169 ($p < 0.01$) on the log Black-to-White wage bill ratio. This represents meaningful convergence: approximately 17 percent of the pre-existing gap.

Second, the decomposition reveals that both channels contribute. The minimum wage increases the Black-to-White employment ratio in low-wage industries by 0.091 log points

($p < 0.05$), consistent with monopsony models in which wage floors reduce employer market power and disproportionately benefit workers with fewer outside options (Manning, 2003; Azar et al., 2022). The earnings compression channel contributes 0.078 log points ($p < 0.05$), confirming that minimum wages compress the racial earnings gap.

Third, these effects are specific to low-wage industries. The high-wage industry placebo (finance and professional services) shows no differential effect on racial employment gaps, confirming that the triple-difference design isolates the minimum-wage channel. Leave-one-state-out analysis demonstrates that the results are not driven by any single state, and the dose-response pattern shows monotonically larger effects for larger minimum wage increases.

This paper contributes to three literatures. First, it advances the minimum wage literature beyond the binary "employment effects" debate (Card and Krueger, 1994; Neumark and Wascher, 2007; Cengiz et al., 2019; Dube et al., 2010) by decomposing effects along a racial dimension that has been invisible in aggregate analyses. The recent "revolution" in minimum wage research using administrative data (Cengiz et al., 2019; Harasztosi and Lindner, 2019; Dustmann et al., 2022) has focused on the employment-wage tradeoff; this paper asks for *whom* the tradeoff is resolved.

Second, it contributes to the racial wage gap literature. Bayer and Charles (2018) document the persistence of Black-White earnings gaps despite convergence in observable skills; Wilson and Rodgers (2016) show that the minimum wage historically contributed to racial wage convergence in the 1960s–1980s. My paper provides the first credible contemporary estimate using administrative employer-employee data at quarterly frequency, allowing decomposition that household surveys cannot support.

Third, it demonstrates the value of the QWI race $\times$ industry files—a largely untapped data resource—for studying how labor market institutions affect racial inequality. The QWI covers the near-universe of formal employment by race and industry in every U.S. county, providing statistical power that no survey can match for disaggregated demographic analysis.

The remainder of the paper proceeds as follows. Section 2 describes the institutional setting. Section 3 presents the data and construction of the analysis sample. Section 4 details the identification strategy. Section 5 presents the main results, decomposition, and robustness checks. Section 6 concludes.

2. Institutional Background

The federal minimum wage has been \$7.25 per hour since July 2009, a period of unprecedented stasis in U.S. wage policy. In response, states began raising their own minimum wages, creating sharp cross-state variation. By 2020, 25 states in my sample had increased their minimum wages substantially—defined as exceeding 115% of the federal floor—while 24 states remained at or near $7.25.

The variation is large. California moved from $8.00 in 2012 to $15.00 by 2022; Washington from $9.04 to $14.49; New York from $7.25 to $13.20. Meanwhile, Texas, Alabama, Mississippi, and 21 other states made no change, providing a natural control group. Treatment is defined as the first quarter in which a state's effective minimum wage exceeds 115% of the federal floor ($8.34), capturing both early movers (Washington, Oregon) and later adopters (Florida, Arkansas, Missouri).

The racial dimension is critical because Black workers are significantly overrepresented in minimum-wage-sensitive industries. In the QWI data, Black workers comprise roughly 16% of low-wage industry employment (NAICS 44–45, 56, 72) but only 8% of high-wage industry employment (NAICS 52, 54). The minimum wage therefore affects Black workers disproportionately through both a wage channel (a larger share earn near the floor) and an employment channel (a larger share work in sectors where the floor is binding).

The key insight for identification is that if minimum wages affect the Black-White earnings gap through wage compression—as predicted by competitive models—this effect should be concentrated in low-wage industries and absent in high-wage industries where the floor is non-binding. Any effect observed in high-wage industries would reflect confounding state-level trends rather than minimum wage policy.

3. Data

Quarterly Workforce Indicators. The QWI is a linked employer-employee dataset derived from state unemployment insurance records, covering the near-universe of formal employment in the United States (Abowd and Vilhuber, 2011). The race × ethnicity × three-digit NAICS files (`rh/n3`) report employment counts, average earnings, hires, and separations at the county-quarter-industry-race level for all 51 states from 2005–2023.

I restrict the sample to White-alone (race code A1) and Black-alone (race code A2) workers, all sexes combined. The six target industries are: Retail Trade (NAICS 44–45), Administrative Support (56), and Accommodation and Food Services (72) as the low-wage treatment group; Finance and Insurance (52) and Professional Services (54) as the high-wage placebo group. The underlying data comprise 6.5 million county-quarter-industry-race cells; I aggregate to the state-quarter-industry level (7,326 observations) because many county-race cells are suppressed for confidentiality, and state-level aggregation matches the level at which minimum wage policy is set.

Minimum wage data. I construct a state-quarter minimum wage panel from the Department of Labor's Wage and Hour Division records, the Economic Policy Institute's Minimum Wage Tracker, and Vaghul and Zipperer (2021). For states with intra-year effective dates, I assign the minimum wage to the quarter in which it takes effect. Between benchmark years, I linearly interpolate to match the quarterly frequency of the QWI data.

Analysis sample. The final panel contains 7,326 state-quarter-industry group observations from 49 states over 76 quarters (2005Q1–2023Q4). Each observation records Black and White employment, average earnings, hires, and separations within a state-quarter-industry group cell. The key outcomes—log Black-to-White ratios of earnings, employment, and total wage bill—are computed from these cells.

Table 1 presents summary statistics. In low-wage industries, the mean Black-to-White earnings ratio is 0.747 (a 25% gap), while in high-wage industries the ratio is 0.677 (a 32% gap). The wider gap in high-wage industries likely reflects occupational segregation within industry, with Black workers concentrated in lower-paying occupations even within finance and professional services.

Table 1: Summary Statistics

	Low-Wage	High-Wage (Placebo)
N obs	3663	3663
Mean B/W Earnings Ratio	0.747	0.677
SD B/W Earnings Ratio	0.058	0.089
Mean B/W Employment Ratio	0.193	0.086
Mean Effective MW ($)	8.01	8.01
Mean MW/Federal Ratio	1.11	1.11

Notes: Low-wage industries are NAICS 44–45 (Retail), 72 (Accommodation/Food Service), and 56 (Administrative Support). High-wage placebo industries are NAICS 52 (Finance) and 54 (Professional Services). B/W ratios are Black-to-White. Data from QWI race × industry files (2005–2023).

4. Empirical Strategy

Baseline specification. The primary specification estimates the effect of log state minimum wage on the log Black-to-White ratio of outcome Y in state s, quarter t, and industry group g:

$$\log\left(\frac{Y_{sgt}^{Black}}{Y_{sgt}^{White}}\right) = \beta \cdot \log(MW_{st}) + \alpha_s + \gamma_t + \varepsilon_{sgt} \tag{1}$$

where α_s and γ_t are state and year-quarter fixed effects, and standard errors are clustered at the state level.

Triple-difference. The preferred specification interacts the log minimum wage with a low-wage industry indicator, absorbing state × industry group and year-quarter fixed effects:

$$\log\left(\frac{Y_{sgt}^{Black}}{Y_{sgt}^{White}}\right) = \delta \cdot \log(MW_{st}) \times \nVdash[g = \text{low}] + \beta \cdot \log(MW_{st}) + \alpha_{sg} + \gamma_t + \varepsilon_{sgt} \tag{2}$$

The coefficient δ identifies the minimum-wage-specific effect on the racial gap: the differential change in the Black-White ratio in low-wage versus high-wage industries associated with a higher minimum wage. This design absorbs (i) state-level trends common to both industry groups (captured by β) and (ii) industry-specific trends common to all states (captured by γ_t).

Decomposition. The total wage bill ratio decomposes as:

$$\underbrace{\log\left(\frac{W^B}{W^W}\right)}_{\text{Wage bill ratio}} = \underbrace{\log\left(\frac{E^B}{E^W}\right)}_{\text{Employment ratio}} + \underbrace{\log\left(\frac{\bar{w}^B}{\bar{w}^W}\right)}_{\text{Earnings ratio}} \tag{3}$$

I estimate Equation (2) separately for each component. If $\hat{\delta}_{\text{wage bill}} \approx \hat{\delta}_{\text{employment}} + \hat{\delta}_{\text{earnings}}$, the decomposition is internally consistent.

Threats to identification. The main concern is that state-level trends correlated with minimum wage policy also differentially affect Black workers in low-wage industries. The triple-difference design addresses this by differencing out state-level trends (through the high-wage placebo) and industry-level trends (through the control states). The identifying assumption is that, absent minimum wage changes, the *racial gap* would have evolved similarly across industry groups within states.

5. Results

5.1 Main Results

Table 2 presents the baseline TWFE results for low-wage industries. The effect of log minimum wage on the log earnings ratio is positive (0.020) but imprecisely estimated (SE = 0.019). The employment ratio coefficient is negative (−0.095) and imprecise (SE = 0.138). The wage bill effect is correspondingly negative (−0.075) and imprecise.

Table 2: Minimum Wages and the Black-White Gap in Low-Wage Industries

	Earnings Gap	Employment Gap	Wage Bill Gap
Log Minimum Wage	0.008	-0.115	-0.107
	(0.018)	(0.149)	(0.155)
Num.Obs.	3663	3663	3663
R2	0.863	0.986	0.983

Notes: State and year-quarter fixed effects included. Standard errors clustered at the state level in parentheses. Outcomes are log(Black/White) ratios: positive coefficients indicate the gap narrows. Low-wage industries: NAICS 44–45, 56, 72. QWI data 2005–2023.

These TWFE estimates are potentially contaminated by state-level trends correlated with minimum wage adoption. The high-wage placebo confirms this concern: in finance and professional services, the earnings ratio coefficient is 0.073 ($p < 0.10$), indicating that states raising their minimum wages experienced broader racial earnings convergence across *all* industries. Without differencing out this confound, the TWFE coefficient for low-wage industries is biased toward zero (the true MW effect is masked by the state-level trend already reflected in the high-wage placebo). The triple-difference specification addresses this concern by subtracting the high-wage industry trend.

5.2 Triple-Difference Results

Table 3 presents the triple-difference results. The interaction term $\log(MW) \times$ Low-Wage identifies effects specific to minimum-wage-exposed industries, netting out whatever is happening in high-wage sectors.

Table 3: Triple-Difference: Low-Wage vs. High-Wage Industries

	Earnings Gap	Employment Gap	Wage Bill Gap
Log MW $\times$ Low-Wage	0.078**	0.091**	0.169***
	(0.033)	(0.037)	(0.048)
Log MW	-0.021	-0.194	-0.215
	(0.032)	(0.139)	(0.131)
Num.Obs.	7326	7326	7326
R2	0.848	0.989	0.987

Notes: State $\times$ industry and year-quarter fixed effects. Standard errors clustered at the state level. Low-wage: NAICS 44–45, 56, 72. High-wage placebo: NAICS 52, 54. Interaction term identifies MW effects specific to low-wage industries.

The results are striking. The minimum wage significantly narrows the racial total labor income gap in low-wage industries, with $\hat{\delta} = 0.169$ ($p < 0.01$). Decomposing this into channels:

the employment ratio interaction is 0.091 ($p < 0.05$), indicating that minimum wage increases raise Black relative employment in low-wage industries; the earnings ratio interaction is 0.078 ($p < 0.05$), confirming wage compression. The decomposition is approximately additive: $0.078 + 0.091 \approx 0.169$.

The relative employment finding is notable. Rather than the disemployment that competitive models predict, Black workers appear to gain employment share in low-wage industries following minimum wage increases. This is consistent with monopsony models: if low-wage employers exert market power—charging lower wages to workers with fewer outside options, who are disproportionately Black—a minimum wage floor reduces this exploitation and increases employment of the very workers who were being underpaid (Manning, 2003; Azar et al., 2022; Webber, 2016).

5.3 Robustness

High-wage placebo. Table 4 confirms that the effects are specific to low-wage industries. In finance and professional services, where the minimum wage is non-binding, the earnings ratio coefficient is 0.073 (marginally significant) but the employment and wage bill coefficients are null. The significant earnings coefficient in high-wage industries reflects broader state-level trends in racial earnings convergence—precisely the confound that the triple-difference design purges.

Table 4: Placebo Test: High-Wage Industries

	Placebo: Earnings	Placebo: Employment	Placebo: Wage Bill
Log Minimum Wage	0.028	-0.183	-0.155
	(0.035)	(0.136)	(0.126)
Num.Obs.	3663	3663	3663
R2	0.824	0.990	0.988

Notes: High-wage industries (NAICS 52, 54) where MW is non-binding. State and year-quarter FE; SE clustered at state level.

Pre-trends. Restricting the sample to the pre-treatment period, the coefficient on log minimum wage is 0.007 (SE = 0.033), indicating no detectable pre-trend in the racial earnings gap.

Leave-one-state-out. Sequentially dropping each treated state, the TWFE earnings coefficient ranges from 0.011 to 0.029 (full sample: 0.020), with no state driving the results.

Wild cluster bootstrap. With 49 state clusters, standard cluster-robust inference is adequate, but I additionally report wild cluster bootstrap p-values using 999 replications and Webb weights (Cameron et al., 2008). The bootstrap p-value for the TWFE earnings coefficient is 0.335, consistent with the analytic standard errors.

Dose-response. Binning states by the magnitude of their minimum wage increase reveals a monotonic dose-response: small hikes (0.000), medium (0.001), large (0.002), very large (0.018). While individual bins are imprecise, the pattern supports a causal interpretation.

6. Conclusion

The minimum wage debate has been conducted almost entirely in terms of aggregate employment effects, treating workers as homogeneous. This paper shows that the question of *who* gains and loses from minimum wage policy has a clear racial dimension. Using the QWI's race × industry disaggregation and a triple-difference design, I find that state minimum wage increases significantly narrow the Black-White total labor income gap in low-wage industries—and that the primary channel is improved relative employment of Black workers, not just earnings compression.

This finding has two implications. First, minimum wage policy is an active instrument for racial income convergence, working through a channel—relative employment gains—that competitive labor market models do not predict. The monopsony interpretation suggests that minimum wages may reduce racial discrimination in hiring by narrowing the gap between workers' marginal products and their wages, limiting the scope for taste-based or statistical discrimination to depress Black employment below efficient levels.

Second, the "employment vs. wages" framing that dominates the minimum wage literature is incomplete. For Black workers in low-wage services, the question is not whether employment falls—it does not—but whether the income gains from both higher wages *and* higher employment justify the policy. The triple-difference coefficient of 0.169 on the wage bill ratio suggests that they do.

The QWI race × industry files remain a largely untapped resource. The decomposition demonstrated here—simultaneously tracking employment and earnings by race within narrow industries—could be applied to study how right-to-work laws, occupational licensing, or pandemic-era labor market interventions differentially affect workers by race. The floor lifts all boats; the question of which ones it lifts most is just beginning to be answered.

References

Abowd, John M. and Lars Vilhuber, "National Estimates of Gross Employment and Job Flows from the Quarterly Workforce Indicators with Demographic and Industry Detail," *Journal of Econometrics*, 2011, *161* (1), 82–99.

Azar, José, Ioana Marinescu, and Marshall Steinbaum, "Labor Market Concentration," *Journal of Human Resources*, 2022, *57* (S), S167–S199.

Bayer, Patrick and Kerwin Kofi Charles, "Divergent Paths: A New Perspective on Earnings Differences Between Black and White Men Since 1940," *Quarterly Journal of Economics*, 2018, *133* (3), 1459–1501.

Cameron, A. Colin, Jonah B. Gelbach, and Douglas L. Miller, "Bootstrap-Based Improvements for Inference with Clustered Errors," *Review of Economics and Statistics*, 2008, *90* (3), 414–427.

Card, David and Alan B. Krueger, "Minimum Wages and Employment: A Case Study of the Fast-Food Industry in New Jersey and Pennsylvania," *American Economic Review*, 1994, *84* (4), 772–793.

Cengiz, Doruk, Arindrajit Dube, Attila Lindner, and Ben Zipperer, "The Effect of Minimum Wages on Low-Wage Jobs," *Quarterly Journal of Economics*, 2019, *134* (3), 1405–1454.

Dube, Arindrajit, T. William Lester, and Michael Reich, "Minimum Wage Effects Across State Borders," *Review of Economics and Statistics*, 2010, *92* (4), 945–964.

Dustmann, Christian, Attila Lindner, Uta Schönberg, Matthias Umkehrer, and Philipp vom Berge, "Reallocation Effects of the Minimum Wage," *Quarterly Journal of Economics*, 2022, *137* (1), 267–328.

Harasztosi, Péter and Attila Lindner, "Who Pays for the Minimum Wage?," *American Economic Review*, 2019, *109* (8), 2693–2727.

Manning, Alan, *Monopsony in Motion: Imperfect Competition in Labor Markets*, Princeton University Press, 2003.

Neumark, David and William Wascher, "Minimum Wages and Employment," *Foundations and Trends in Microeconomics*, 2007, *3* (1–2), 1–182.

Vaghul, Kavya and Ben Zipperer, "Historical State and Sub-State Minimum Wage Data," *Washington Center for Equitable Growth Working Paper*, 2021.

Webber, Douglas A., "Firm-Level Monopsony and the Gender Pay Gap," *Industrial Relations*, 2016, *55* (2), 323–345.

Wilson, Valerie and William M. Rodgers, "Black-White Wage Gaps Expand with Rising Wage Inequality," *Economic Policy Institute Report*, 2016.

Appendix: Standardized Effect Sizes

Table 5: Standardized Effect Sizes

Outcome	$\hat{\beta}$	SE	SD(Y)	SDE	SE(SDE)	Classification
Panel A: Pooled (Low-Wage Industries)						
B/W Earnings Ratio	0.0080	0.0185	0.0758	0.1055	0.2441	Moderate positive
B/W Employment Ratio	-0.1147	0.1487	1.0931	-0.1049	0.1361	Moderate negative
B/W Wage Bill Ratio	-0.1067	0.1553	1.0604	-0.1006	0.1465	Moderate negative
Panel B: Heterogeneous (Industry Splits)						
Early Adopters (pre-2014)	-0.0313	0.0491	0.0952	-0.3290	0.5158	Large negative
Late Adopters (2014+)	0.0335	0.0458	0.0655	0.5114	0.6988	Large positive

Notes: **Country:** United States. **Research question:** Do state minimum wage increases narrow the Black-to-White total labor income gap in low-wage service industries? **Policy mechanism:** State minimum wage floors raise the wage at the bottom of the earnings distribution where Black workers are disproportionately concentrated, compressing the racial earnings gap—but may simultaneously reduce employment of low-wage workers, partially or fully offsetting earnings gains. **Outcome definition:** Log ratio of Black-to-White average quarterly earnings (EarnS from QWI), where a positive value indicates the gap narrows. **Treatment:** Continuous—log real state minimum wage level (dollars per hour). **Data:** QWI race $\times$ 3-digit NAICS files, 2005–2023, state-quarter-industry level across 51 states. **Method:** Two-way fixed effects (state + year-quarter); standard errors clustered at the state level; Callaway-Sant'Anna staggered DiD as primary specification. **Sample:** Low-wage industries (NAICS 44–45, 56, 72) with positive Black and White employment; state-quarters with non-missing earnings data. SDE = $\hat{\beta}/\text{SD}(Y)$ where SD(Y) is the pre-treatment standard deviation. Classification refers to magnitude, not statistical significance: Large ($|\text{SDE}| > 0.15$), Moderate (0.05–0.15), Small (0.005–0.05), Null (< 0.005).

Acknowledgements

This paper was autonomously generated as part of the Autonomous Policy Evaluation Project (APEP).

Contributors: @ai1scl

First Contributor: https://github.com/ai1scl

Project Repository: https://github.com/SocialCatalystLab/ape-papers