Appendix to: The Real Effects of Fair Workweek Laws on Work Schedules: Evidence from Los Angeles

Forthcoming at *Management Science*

Caleb Kwon Ananth Raman

A. Additional Details on Los Angeles's Fair Workweek Law

This appendix provides details on the Los Angeles Fair Workweek Ordinance (LFW), formally known as Ordinance No. 187710, codified as Los Angeles Municipal Code Chapter XVIII, Articles 5 and 8.[1] Section 185 establishes fair workweek provisions while Section 188 creates enforcement mechanisms.[2] The ordinance took effect April 1, 2023, with full enforcement beginning September 28, 2023, following a 180-day grace period.

A.1. Coverage and Applicability

The LFW applies to retail businesses classified under North American Industry Classification System (NAICS) codes 44-45 that employ 300 or more employees globally.[3] This calculation includes employees of qualifying subsidiaries and franchisees operating establishments of more than 15,000 square feet. Employers must maintain direct or indirect control over employees' wages, hours, or working conditions, including through agents such as temporary service or staffing agencies.

Employee coverage extends to any individual performing at least two hours of work within Los Angeles city limits during any particular week who qualifies for California's minimum wage requirements under Labor Code Section 1197.[4] Certain employees are exempt, including those who

Caleb Kwon: McCombs School of Business, The University of Texas at Austin, caleb.kwon@mccombs.utexas.edu
Ananth Raman: Harvard Business School, Harvard University, araman@hbs.edu

[1] The full ordinance text and implementation guidance are available at https://wagesla.lacity.gov/fair-work-week-information.

[2] Los Angeles Municipal Code Chapter XVIII, Article 5, Section 185 and Article 8, Section 188. The complete ordinance documentation is available at https://wagesla.lacity.gov/sites/g/files/wph1941/files/2023-03/Fair%20Work%20Week%20Ordinance.pdf.

[3] LAMC Section 185.01.D. See https://wagesla.lacity.gov/sites/g/files/wph1941/files/2023-03/Fair%20Work%20Week%20Ordinance.pdf.

[4] The ordinance explicitly covers full-time, part-time, temporary, and seasonal workers regardless of immigration status. See LAMC Section 185.01.C and California Labor Code Section 1197.

are parents, spouses, or children of the employer.

A.2. Core Scheduling Requirements

A.2.1. Advance Notice Provision

Employers must provide written work schedules at least 14 calendar days before the start of the work period.[5] The "work period" refers to any established and regularly recurring period that cannot be less than one work week, though it need not coincide with pay periods. Because employers must post complete work periods, shifts later in the period mechanically receive more advance notice than the 14-day minimum. For example, if a work period spans Monday to Sunday, Monday shifts receive 14 days' notice while Sunday shifts receive 20 days' notice.

When employers initiate schedule changes after the advance notice period, they must provide written notice of the changes. Employees retain the right to decline certain schedule changes not included in the original work schedule.[6]

A.2.2. Predictability Pay

When employers modify schedules within the 14-day advance notice window, they must provide "predictability pay" as follows:[7]

- **Schedule changes:** One hour of regular pay for changes to date, time, or location of shifts, or for adding work time exceeding 15 minutes
- **Reduced hours:** One-half the regular pay rate for scheduled hours reduced by at least 15 minutes
- **On-call shifts:** One-half the regular pay rate for on-call shifts where the employee is not called to work

Multiple changes to a single shift compound these requirements.

A.2.3. Exemptions from Predictability Pay

The ordinance establishes six exemptions where predictability pay is not required:[8]

1. Employee-initiated schedule changes
2. Voluntary acceptance of shifts to cover absent colleagues

[5] LAMC Section 185.04.A. Written notice can be delivered by posting in a conspicuous location where employee notices are customarily displayed or transmitted electronically in a manner reasonably calculated to provide actual notice. See https://wagesla.lacity.gov/sites/g/files/wph1941/files/2023-03/Fair%20Work%20Week%20Ordinance.pdf.

[6] LAMC Section 185.04.B requires that if an employee voluntarily consents to work schedule changes, such consent must be documented in writing.

[7] LAMC Section 185.06.A establishes specific compensation requirements for schedule changes. See https://wagesla.lacity.gov/sites/g/files/wph1941/files/2023-03/Fair%20Work%20Week%20Ordinance.pdf.

[8] LAMC Section 185.06.B. These exemptions balance business flexibility with worker protection. See https://wagesla.lacity.gov/sites/g/files/wph1941/files/2023-03/Fair%20Work%20Week%20Ordinance.pdf.

3. Acceptance of additional hours under the access to hours provision
4. Hours reduced due to employee violations of law or employer policy
5. Operations compromised by threats to employees or property, force majeure, public utility failures, or acts of nature
6. Schedule changes where additional hours trigger overtime premiums under California Labor Code Section 510

A.3. Additional Provisions

A.3.1. Good Faith Estimates

Before hiring, employers must provide prospective employees with written good-faith estimates of anticipated work schedules, including:[9]

- Expected number of hours per week
- Days of the week the employee can expect to work
- Typical shift times
- Work location(s)
- Whether on-call shifts are expected

If actual work substantially deviates from estimates, employers must document legitimate business reasons when the estimate was provided.

A.3.2. Rest Between Shifts

Employers cannot schedule employees for shifts starting less than ten hours after their previous shift ends without written consent from the employee.[10] When employees work such "clopening" shifts, employers must pay time and a half for the second shift.[11]

A.3.3. Access to Hours

Before hiring new employees or using temporary workers, employers must offer additional work hours to qualified current employees.[12] Employers must post offers at least 72 hours before hiring, and employees have 48 hours to accept in writing. This provision applies only when additional hours would not trigger overtime requirements.

[9] LAMC Section 185.02. Current employees can request an updated estimate, which employers must provide within ten days. See https://wagesla.lacity.gov/sites/g/files/wph1941/files/2023-03/Fair%20Work%20Week%20Ordinance.pdf.

[10] LAMC Section 185.08. See https://wagesla.lacity.gov/sites/g/files/wph1941/files/2023-03/Fair%20Work%20Week%20Ordinance.pdf.

[11] Office of Wage Standards FAQ, March 1, 2023, clarifies that employees receive time and a half for the second shift not separated by at least ten hours. Available at https://wagesla.lacity.gov/fair-work-week-information.

[12] LAMC Section 185.05. This provision prioritizes existing employees for additional work opportunities. See https://wagesla.lacity.gov/sites/g/files/wph1941/files/2023-03/Fair%20Work%20Week%20Ordinance.pdf.

A.4. Enforcement and Penalties

The Office of Wage Standards within the Bureau of Contract Administration enforces the ordinance.[13] Employees must provide written notice of alleged violations to employers, who have 15 days to cure violations before complaints can be filed.[14]

A.4.1. Employee Remedies

Employees can receive up to $500 per violation for failures including:[15]

- Not providing good faith estimates
- Inadequate advance notice of schedules
- Missing written notices of schedule changes
- Unpaid predictability pay or rest period premiums
- Failure to offer additional hours before hiring

A.4.2. Administrative Penalties

The city can impose:[16]

- $50 per day for unlawfully withheld wages or predictability pay
- $500 for posting, access, or recordkeeping violations
- $1,000 per employee for retaliation

A.5. Recordkeeping Requirements

Employers must retain for three years:[17]

- All work schedules provided to employees
- Written offers for additional hours and employee responses
- All correspondence regarding schedule changes, including requests, approvals, and denials
- Good faith estimates provided to employees
- Documentation of employee consent to work clopening shifts
- Any additional records the Office of Wage Standards requires

[13] The Office of Wage Standards serves as the Designated Administrative Agency responsible for ordinance implementation and enforcement. See https://wagesla.lacity.gov/fair-work-week-information.

[14] LAMC Section 188.05.A establishes this notice and cure provision.

[15] LAMC Section 188.07.B.2. See https://wagesla.lacity.gov/sites/g/files/wph1941/files/2023-03/Fair%20Work%20Week%20Ordinance.pdf.

[16] LAMC Sections 188.08.A and 188.08.B establish these penalty structures. See https://wagesla.lacity.gov/sites/g/files/wph1941/files/2023-03/Fair%20Work%20Week%20Ordinance.pdf.

[17] LAMC Section 185.09 mandates three-year retention for all ordinance-related records for both current and former employees. See https://wagesla.lacity.gov/sites/g/files/wph1941/files/2023-03/Fair%20Work%20Week%20Ordinance.pdf.

A.6. Anti-Retaliation Protections

The ordinance prohibits employers from discharging, reducing compensation, or otherwise discriminating against employees who exercise their rights under the ordinance.[18] Taking adverse action within 90 days of an employee exercising protected rights creates a rebuttable presumption of retaliation.[19]

A.7. Implementation Timeline

The ordinance took effect April 1, 2023, with a 180-day grace period during which the city issued only written warnings. Full enforcement including fines and penalties began September 28, 2023.[20] The Office of Wage Standards maintains ongoing rulemaking authority under LAMC Section 188.13 and has issued interpretive guidance through FAQ documents, most recently updated April 21, 2023.[21]

[18] LAMC Section 185.12. See https://wagesla.lacity.gov/sites/g/files/wph1941/files/2023-03/Fair%20Work%20Week%20Ordinance.pdf.

[19] LAMC Section 188.04 establishes this rebuttable presumption of retaliation.

[20] Implementation timeline confirmed by the Office of Wage Standards. See https://wagesla.lacity.gov/fair-work-week-information.

[21] The Office of Wage Standards continues to provide implementation guidance through its official website at https://wagesla.lacity.gov, where the full ordinance text, FAQ documents, and compliance resources remain available for employers and employees.

B. Glossary of Variables

TABLE A1. Variable Definitions

Variable	Definition
Advance Notice	The number of days between when a shift is finalized and when the shift is scheduled to occur. At the shift level, this is calculated using timestamp metadata from the workforce management software, which indicates when the shift was last modified. At the worker-month level, this is averaged across all scheduled shifts for each worker in the focal month.
Shifts	A shift is defined as a scheduled block of work with a specific start date, start time, and duration, assigned to an employee and a task.
Scheduled Labor Minutes	The total number of minutes of labor scheduled for a worker or store during a given period. Computed by summing shift durations at the relevant unit level.
Store Demand (Workload)	The AI system used by employers forecasts expected customer demand (e.g., based on forecasted sales or foot traffic). This prediction is translated into a labor demand forecast in minutes by the AI tool used to schedule labor.
Labor Supply (Available Labor)	The number of minutes employees were theoretically available to be scheduled, based on their declared availability and compliance with rules (e.g., maximum hours). This reflects the upper bound on available labor from the staffing roster, not necessarily scheduled hours.
Manager Edits	A count of all timestamped modifications made to the AI-generated schedules by human managers. Includes additions, deletions, start time/duration changes, and task reassignments.
Store Operating Days	The number of calendar days a store was open during the focal period.
Store Operating Minutes	The cumulative time stores were open to customers (e.g., 9am–5pm = 480 minutes per day). Calculated using metadata on store hours, aggregated monthly.
Employee Hires and Turnover	The number of new hires and employee separations that occurred in a store during a given month.
Part-Time Status	A binary indicator variable that equals 1 for employees who are recorded as being part-time (and zero otherwise).
Part-Time Labor Ratio	The share of scheduled labor minutes or shifts attributable to part-time employees in a given store-month.
Clopening Shifts	Indicates whether a worker was scheduled for a closing shift followed by an opening shift with fewer than 10 hours of rest between them. This is calculated using sequential shift-level data across adjacent days.
Unstable Start Times Shifts	Indicates whether a shift's start time differed by more than one hour from the same weekday shift in the previous week, conditional on the worker having worked that same weekday in both weeks.
Weekly Hours Variability	The standard deviation of total scheduled minutes across weeks within a given month for each worker.
County-Level Demographics	Using store ZIP codes crosswalked via zipcodeR, we merge county-level controls (e.g., income, retail share of employment) from ACS data.

C. Additional Retailer Details

All seven retailers in our sample use the same commercial AI scheduling tool with consistent features throughout our study period. The tool generates work schedules in weekly increments, typically 3-4 weeks in advance. Employees see only the final schedule after all managerial edits—they never observe the initial AI-generated version or intermediate modifications.[22] After distribution, managers retain full flexibility to modify schedules, and we measure advance notice from each shift's final modification timestamp.[23] The AI tool functions as a static optimization system that does not learn from managerial overrides. Importantly, none of the retailers modified their AI systems' algorithms, forecasting methods, or scheduling horizons in response to the LFW. This technological consistency ensures that our estimated effects reflect changes in managerial behavior rather than changes to the scheduling technology itself. We discuss how these features affect the generalizability of our findings in Appendix E.

D. Summary Statistics

TABLE A2. Pre-Treatment Worker-Month Covariate Balance

Variable	Diff. Means	Abs. Norm. Diff.	Mean Treated	Mean Control	SD Treated	SD Control
log(Average Advance Notice (Days))	0.019	0.020	2.384	2.365	0.665	0.654
log(Total Shifts)	0.011	0.007	1.916	1.905	1.097	1.043
log(Total Scheduled Minutes)	0.059	0.039	8.042	7.983	1.088	1.068
log(Store Labor Supply)	-0.371	0.309	12.911	13.282	1.016	0.637
log(Store Open Minutes)	0.111	0.208	10.089	9.977	0.428	0.327
log(Store Scheduled Minutes)	-0.135	0.152	11.610	11.744	0.681	0.561
log(Store Demand Forecast)	-0.142	0.160	11.395	11.537	0.676	0.572

Notes: This table presents pre-treatment covariate balance between Los Angeles (treated) and non-Los Angeles (control) workers. The sample is based on 4,100,852 worker-month observations from the pre-LFW period. The difference represents the simple difference in means between the treated and control groups. Absolute Normalized Difference is calculated as $|\bar{X}_T - \bar{X}_C|/\sqrt{(S_T^2 + S_C^2)/2}$, where $\bar{X}_T$ and $\bar{X}_C$ are the treated and control means, and S_T^2 and S_C^2 are the corresponding variances (**?**). Specifically, we first take averages of the above variables within each worker-month observation and then compute the differences and normalized differences between treatment and control groups. All variables are log-transformed. Worker-level variables include Average Advance Notice (mean number of days between schedule posting and shift start), Scheduled Minutes (total labor minutes), and Total Shifts. Store-level variables include Labor Supply (total potential labor based on employee availability), Open Minutes (operating hours), Scheduled Minutes (aggregate of all workers), Total Shifts (aggregate), and Workload Minutes (AI-forecasted labor demand). Variable definitions are provided in Appendix B.

[22] Managers can make multiple edits before publishing schedules to employees.

[23] For example, if a shift is initially scheduled three weeks in advance but modified one week later, we measure advance notice from the modification date.

TABLE A3. Pre-Treatment Worker-Month Covariate Balance (Matched Sample)

Variable	Diff Means	Abs. Norm. Diff.	Mean Treated	Mean Control	SD Treated	SD Control
Log(Average Advance Notice (Days))	-0.012	0.017	2.372	2.384	0.521	0.524
Log(Total Shifts)	0.035	0.018	4.082	4.047	1.389	1.351
Log(Total Scheduled Minutes)	0.046	0.023	10.178	10.132	1.434	1.411
Log(Store Demand Forecast)	0.016	0.017	11.293	11.277	0.674	0.674
Log(Store Labor Supply)	0.085	0.057	12.746	12.661	1.049	1.053
Log(Total Store Open Minutes)	0.022	0.016	11.775	11.753	0.957	0.999
Log(Store Total Edit Counts)	0.091	0.050	5.881	5.790	1.291	1.305
Log(Per Capita Income)	0.025	0.042	10.568	10.543	0.454	0.396
Log(Store Scheduled Minutes)	0.049	0.051	11.351	11.302	0.675	0.679
Retail Share	-0.002	0.059	0.096	0.098	0.021	0.022
Part-Time	0.000	0.000	0.542	0.542	0.498	0.498
Manager	0.000	0.000	0.056	0.056	0.229	0.229

Notes: This table presents pre-treatment covariate balance between Los Angeles (treated) and non-Los Angeles (control) workers after matching. As described in Section **??**, we implement nearest-neighbor matching with a probit distance metric that exactly matches workers on part-time status, managerial status, and company affiliation. Within these strata, we find the closest matches based on pre-treatment worker-level variables (wages, total shifts, and minutes worked) and store-level variables (workload minutes, labor supply, scheduled labor minutes, operating minutes, and managerial edits), as well as Census zip-code-level characteristics (retail employment share and log per capita income). The sample size is not reported as requested by our data providers. Absolute Normalized Difference is calculated as $|\bar{X}_T - \bar{X}_C|/\sqrt{(S_T^2 + S_C^2)/2}$, following **?**. The absolute normalized difference for wages is 0.0183 (not reported above). Worker-level variables include Wages (hourly wage rate), Average Advance Notice (mean number of days between schedule posting and shift start), Scheduled Minutes (total labor minutes), and Total Shifts. Store-level variables include Labor Supply (total potential labor based on employee availability), Open Minutes (operating hours), Scheduled Minutes (aggregate of all workers), Shifts (aggregate), and Workload Minutes (AI-forecasted labor demand). The matching procedure successfully achieves balance across all covariates, with all absolute normalized differences well below conventional thresholds, supporting the credibility of our matched sample estimates. Variable definitions are provided in Appendix B.

E. Limitations of our Analyses

E.1. Concurrent Policy Changes

While Los Angeles provides a relatively clean setting to study the causal effects of FWLs compared to other jurisdictions,[24] the ordinance's implementation coincides with a minimum wage increase from $16.04 to $16.78 per hour on July 1, 2023. This concurrent policy change presents challenges for causal identification, as both policies could theoretically affect scheduling practices through different mechanisms. Minimum wage increases might lead employers to reduce scheduled hours to control labor costs, potentially affecting when and how shifts are scheduled. Alternatively, higher wages might reduce turnover, leading to more stable scheduling patterns. The temporal overlap makes it difficult to definitively separate these effects.

We provide extensive evidence in Appendix G demonstrating that our results are driven by the FWL rather than the minimum wage increase. Our evidence includes: (1) a placebo test using the July 2022 minimum wage increase that shows no effects on advance notice, (2) the minimal presence of minimum wage workers in our wage-observed subsample, and (3) robustness of our results when excluding all minimum wage workers in our wage-observed subsample. Most compellingly, when we directly test for scheduling changes around the earlier minimum wage increase using a difference-in-differences design, we find precisely estimated null effects, suggesting that minimum wage changes alone do not affect scheduling practices in our setting.

Nevertheless, we acknowledge that the contemporaneous nature of these policies represents a limitation. While our evidence strongly suggests the FWL drives our results, we cannot completely rule out interactive effects between the two policies or other unobserved concurrent changes that might affect scheduling practices in Los Angeles, specifically during this period.

E.2. Data Limitations in Measuring Worker Benefits

Our administrative data, while exceptionally detailed in tracking schedule changes, have important limitations in assessing the full benefits to workers.

Predictability Pay Observation: We cannot observe whether workers actually received predictability pay for shifts that violated advance notice requirements. This creates fundamental uncertainty about the mechanisms driving our results. When we observe a shift scheduled with less than 14 days' notice, we cannot determine whether the employer paid the required premium (one hour of regular pay for schedule changes), if the change was exempt from penalties, or if any violations went uncompensated. This limitation means that our measured improvements in advance notice

[24] For example, the FWLs in Chicago and Philadelphia were implemented during the COVID-19 pandemic, creating substantial confounding effects.

could reflect three distinct scenarios: genuine compliance, where employers reorganized scheduling processes to avoid penalties; technical compliance, where employers routinely pay predictability premiums as a cost of maintaining flexibility; or incomplete compliance, where violations occur without proper compensation. Without payroll data that shows predictable pay disbursements, we cannot distinguish among these possibilities or assess the monetary benefits workers receive from the law.

Schedule Change Attribution: The FWL exempts employee-initiated schedule changes from predictability pay requirements, creating strong incentives for employers to frame changes as "voluntary." This exemption is economically significant—it allows employers to avoid penalties entirely if they can document that workers requested or agreed to the change. Our data cannot distinguish between schedule changes that are (i) genuinely initiated by employees for personal reasons, (ii) initiated by managers but framed as voluntary—whether through informal pressure or implicit norms—or (iii) mutually discussed and agreed upon by both parties. This attribution problem is particularly consequential for interpreting our heterogeneous effects. The smaller improvements we observe for part-time workers (4.2 percentage points less than full-time workers) could reflect either operational necessities—part-time workers serve as flexible capacity to meet demand fluctuations—or these workers' greater willingness to accept "voluntary" short-notice shifts due to economic precarity. Similarly, lower-wage workers might agree to last-minute shifts more readily than higher-wage workers, not due to preferences but due to financial constraints. Without knowing the true initiator of schedule changes, we cannot fully assess whether the law protects vulnerable workers or whether loopholes undermine its effectiveness.

Worker Welfare Measures: We lack direct measures of worker satisfaction, stress levels, financial stability, or work-life balance. While economic theory suggests that increased advance notice should improve worker welfare by enabling better planning of childcare, transportation, education, and other activities, we cannot quantify these benefits. We also cannot observe whether workers value predictability sufficiently to offset any negative adjustments along unmeasured dimensions. For instance, if employers respond by offering fewer shifts overall or reducing scheduling flexibility that some workers value, the net welfare effects could be ambiguous. Furthermore, we cannot measure spillover effects on family members, particularly children, who may benefit from more predictable parental schedules. These unmeasured welfare dimensions are precisely what motivate FWLs, yet our administrative data provides only indirect evidence of their achievement through the mechanism of improved advance notice.

E.3. External Validity Concerns

Several factors limit the generalizability of our findings to other contexts. Our analysis examines only 175 treated stores in Los Angeles among 21,000 total stores in our sample, representing less than 1% of our data coming from treated units. This small treatment share raises concerns about whether Los Angeles stores are representative of retail operations in other cities, the appropriateness of our control group selection, and potential spillover effects if companies adjusted practices nationwide in anticipation of broader regulatory changes.

While we employ matched samples using retail employment share and log per capita income at the zip code level, these variables may inadequately capture important regional heterogeneity. We cannot account for differences in consumer behavior patterns affecting demand predictability, local labor market tightness influencing worker bargaining power, cultural or regulatory environments shaping scheduling norms, or regional variations in demand volatility driving operational needs for scheduling flexibility. These unmeasured differences could mean that the scheduling challenges and solutions in Los Angeles differ systematically from those in other markets.

Our exclusive focus on large, sophisticated retailers presents perhaps the most significant limitation to generalizability. These firms use AI-powered scheduling tools that may facilitate compliance by automating advance notice calculations and flagging potential violations. They maintain dedicated HR departments and legal compliance teams that can interpret and implement new regulations effectively. They operate at scales where fixed compliance costs—such as system modifications or training programs—can be spread across thousands of employees. Their workers may also differ systematically from those at smaller retailers in terms of skill levels, tenure, or scheduling preferences. This technological and organizational sophistication could lead to either overestimating compliance rates (if these tools make adjustment substantially easier than manual scheduling) or underestimating the benefits of FWLs (if these firms already maintain relatively predictable schedules due to their advanced scheduling systems).

E.4. Measurement Limitations

Schedule Stability Definition: There is no consensus definition of schedule stability in either academic literature or policy discourse. Our measures—shift duration variability, weekly hours consistency, clopening shifts, and start time consistency—represent our best attempt to capture multiple dimensions, but may miss aspects that matter to workers, such as predictability of days off, consistency of shift assignments across weeks, clustering of work days, or alignment with workers' preferred schedules. The lack of a unified framework for measuring stability remains a fundamental challenge in evaluating whether FWLs achieve their broader goals beyond predictability.

Advance Notice Measurement: Our advance notice calculations face two key limitations. First, the LFW requires 14 days' notice for the entire work period (typically a week), not for individual shifts. When employers post a weekly schedule 14 days before Monday, all shifts in that week technically comply with the law, even though Sunday shifts appear in our data as having 20 days' notice while Monday shifts show 14 days. This creates measurement challenges because our shift-level analysis may overstate advance notice for later days in the work period. However, this would only bias our results if the LFW caused systematic changes in how labor is distributed across the work week—for instance, if employers shifted more labor to later days in the week to take advantage of the mechanically longer notice periods. We find no evidence of such strategic behavior in our data. Second, while we observe when schedules are finalized in the system, managers may informally communicate schedules earlier or later than our timestamps indicate, potentially leading to measurement error in our advance notice improvements.

Limited Time Horizon: With 22 months of post-implementation data, we capture medium-term adjustments but cannot assess potential long-term equilibrium effects on scheduling practices or whether compliance might deteriorate over time as initial enforcement attention wanes. Longer-term analysis would be valuable for understanding whether the improvements we document represent permanent changes to business practices or temporary adjustments.

E.5. Scope Limitations

Our analysis focuses on first-order effects related to scheduling practices and basic employment outcomes, leaving several important questions unexplored. We do not examine business performance metrics such as store sales or revenue, customer service quality, operational efficiency or productivity, profit margins, or long-term business sustainability. These outcomes, while crucial for understanding the full economic impact of FWLs on retailers, require data beyond what is available in our scheduling and workforce management systems.

Our store-level focus also prevents analysis of broader labor market effects. We cannot observe whether workers who might experience reduced hours find employment elsewhere, whether wage adjustments compensate for scheduling restrictions, how job quality changes along unmeasured dimensions, or how FWLs affect regional labor market equilibrium. Additionally, we cannot quantify the implementation costs of compliance, including administrative burden, system modifications or training expenses, legal and consulting fees, or the opportunity costs of managerial time spent adapting to new requirements.

Finally, we do not observe important aspects of worker adaptation to the law. Our data cannot reveal whether workers adjust their stated availability in response to more predictable schedules, changes in multiple job-holding patterns that might result from improved scheduling, modifications

to childcare or other personal arrangements enabled by greater predictability, or effects on long-term career trajectories. These limitations suggest important avenues for future research and highlight the need for caution in extrapolating our findings to different contexts or assuming they capture the full effects of Fair Workweek Laws.

F. Policy Debate Surrounding Fair Workweek Laws

TABLE A4. Negative Expressions about FWLs

Person/Organization	Jurisdiction	Quote
Colorado Restaurant Association	Colorado	99% of restaurants will likely limit plans for future growth, 98% are likely to schedule fewer workers per shift, 92% are likely to cut employee hours, 95% are likely to stop hiring individuals who need flexibility in scheduling such as students and single parents.
Judy Amabile (D-Boulder)	Colorado	[FWLs may] have unintended consequences that, in the end, could hurt the very people the bill is intended to help, as well as damage to the restaurant industry, which she said is still facing the effects of COVID-19, including worker shortages.
Loren Furman (Colorado Chamber of Commerce)	Colorado	[The] restrictive scheduling bill was one of the worst bills for business we've seen from the Legislature in years, and that was reflected by the significant backlash from business owners across the state.
Krissie Harris (Evanston Councilmember)	Evanston, IL	I am being bombarded by my residents, by my businesses. They are not in favor of this.
Carmine Presta (Business Owner)	Evanston, IL	The administrative and penalty requirements of this ordinance will destroy schedule flexibility for the employee.
Evanston Restaurant Association (50 + Business Owners)	Evanston, IL	This is a misguided proposal that would destroy workplace flexibility while devastating a broad spectrum of industries that drive Evanston's economy. We believe our employees value the flexibility and support we provide for them. This ordinance hurts the very people it is claiming to help.
Chauncey Rice (Associate Vice President of Illinois Retail Merchants Association)	Chicago, IL	It's because of policies like this that retailers of every type and size including pharmacies, grocers, restaurants, and hardware stores are increasingly unable to keep their doors open.
Brad Tietz (Vice President, Chicagoland Chamber of Commerce)	Chicago, IL	Rather than striking a balance that works for both workers and businesses, this proposal will hinder economic development and employment opportunities in the communities that need it most.
Yadira Enriquez (Grocery Store Owner)	Chicago, IL	All the dedication, determination, persistence and resourcefulness that helped us succeed is no match for bad policies that threaten the dreams of entrepreneurs in neighborhoods across Chicago.
Stuart Waldman (Valley Industry and Commerce Association)	Los Angeles, CA	This ordinance is a one-size-fits-all approach that was rushed through without any debate or economic analysis. This is an example of how not to legislate.
Jessica Duboff (Los Angeles Chamber of Commerce)	Los Angeles, CA	Predictive scheduling is often actually restrictive scheduling, imposing a one-size-fits-all system that threatens the flexibility of employees and employers.
Shania Roberts (LA Retail Coordinator and Staffer)	Los Angeles, CA	Employers also need flexible hours and schedules because of how many employees leave or don't show up at wanted times. But now it has to have a two week schedule in advance, so if people are out all the sudden, it will be even more of a scramble.

TABLE A5. Positive Expressions about FWLs

Person/Organization	Jurisdiction	Quote
Lorelei Salas (Commissioner of NYC Dept. of Consumer and Worker Protection)	New York City, NY	Fast food and retail workers endure unpredictable schedules and incomes that make it hard for them to create budgets, schedule child care, or pursue education or a second job.
Massachusetts Fair Workweek Law Initiative	Massachusetts	[FWLs] allows workers in restaurants, retail establishments, and the hospitality industry the chance to build stable lives for themselves and their families, because for many, erratic work schedules make stability almost impossible.
Paul Koretz (Council member)	Los Angeles, CA	It is a minor inconvenience for employers to provide a stable workweek. But it makes a life-and-death difference for workers who have an unreliable schedule that changes from week to week. Its passage is one of the proudest moments of the L.A. City Council. It makes a lot of things in life possible and functional without causing an undue harm to the employers
Curren Price (Council member)	Los Angeles, CA	These new regulations will provide employees – many of whom are people of color and live paycheck to paycheck – predictability, stability and flexibility in their work schedules, while demonstrating respect and appreciation for them and their families. Besides being the right thing to do, these protections will make it easier for Angelenos to balance their family and work lives, and to plan ahead. We must recognize the gaps and wide range of concerns faced by our workers, and we must put their needs over corporate profits. This is the least we can do to give them our sincere appreciation and thanks for the work that they do.
Paul Krekorian (Council member)	Los Angeles, CA	[FWLs] make a lot of things in life possible and functional without causing an undue harm to the employers. [FWLs] are a catalytic change in the way the retail industry is going to be operating in our city.
Helen Xu (Reporter covering Colorado's Fair Workweek Law	Colorado	Emotional testimony from supporters described how unpredictable schedules threw their lives into chaos, leaving them to constantly scramble and stress about making child pickups and drop-offs, medically necessary doctor's appointments, and important social events such as birthdays, anniversaries and even weddings. Many cited studies showing that unpredictable schedules and their negative effects fell disproportionately on women and people of color, framing this bill as a small step toward fixing systematic racism.
Bob Reiter (Chicago Federation of Labor)	Chicago, IL	At the end of the day, if you schedule your people fairly and you're a good employer, the scheduling law just shouldn't add any cost to your plate.

G. Robustness to Contemporaneous Minimum Wage Changes

A key econometric concern with our empirical approach is that a minimum wage increase (from \$16.04 to \$16.78) occurred in Los Angeles on July 1, 2023, coinciding with when our estimated effects on advance notice began to materialize. While this contemporaneous policy change presents an obstacle to disentangling the effects of the LFW from the effects of the minimum wage increase, several empirical and contextual factors suggest the changes in advance notice are primarily driven by the former. First, we examine the composition of minimum wage workers in our sample. While only some companies provided wage data (covering 35% of our worker-month observations), less than 6% of Los Angeles employees in this subsample were being paid the minimum wage prior to the LFW's enactment.[25] Our estimates from this wage-observed subsample remain very similar to those from the full sample (0.111 versus 0.086), suggesting minimal influence from minimum wage workers.

Second, we directly test whether minimum wage increases affect advance notice by examining the July 1, 2022, minimum wage increase (from \$15 to \$16.04) that occurred during our pre-treatment period. Table A7 presents difference-in-differences estimates using a symmetric 12-month window around this earlier minimum wage change. The results show no significant effect on advance notice, with point estimates near zero and statistically insignificant across all specifications. This null finding provides suggestive evidence that minimum wage changes alone do not drive changes to advance notice.

Third, the temporal pattern of our main effects aligns with the LFW's implementation structure rather than wage adjustments. The gradual increase in advance notice, beginning in month 2 and stabilizing around month 15, aligns with the law's 180-day grace period (ending September 28, 2023), during which only warnings were issued. This pattern of initial adjustment followed by stabilization is consistent with firms learning to comply with new scheduling requirements rather than responding to wage changes.

Fourth, our data providers confirmed that minimum wage increases should not affect scheduling practices, as store labor budgets automatically scale with wage changes and are set by corporate officers several quarters in advance, factoring in any scheduled minimum wage increases.

Finally, we test whether our results could be driven by the subset of workers directly affected by the minimum wage increase. Among companies that provided wage data (approximately 35% of our sample), we identify and exclude all Los Angeles workers earning exactly \$16.04 (the pre-July 2023 minimum wage). This exclusion removes the workers most likely to be affected by the

[25] Based on their wage in the month prior to the effective date of the LFW. The wage data limitation arises because some retailers do not provide complete wage records, and some managerial staff lack wage data if they are not hourly shift-based workers.

concurrent minimum wage increase. Table A6 shows that our estimates remain virtually unchanged after dropping these minimum-wage workers, with the treatment effect still approximately 8.6%.

The logic for this robustness test is as follows: if the minimum wage increase were driving our results, we would expect to see substantially different estimates when we exclude the workers directly affected by that policy. The fact that our estimates remain unchanged suggests that the improvements in advance notice stem from the FWL's scheduling requirements rather than from any labor-market adjustments associated with the minimum-wage increase (such as employers reducing hours to offset higher labor costs or changing scheduling practices for workers whose wages increased). This test is particularly compelling because it removes precisely those workers whose scheduling might change due to the minimum wage policy. Despite this comprehensive evidence, we acknowledge that the contemporaneous nature of these policy changes poses challenges for causal identification.

TABLE A6. Effects on Schedule Predictability

	log(Avg. Adv. Notice)				Avg. Adv. Notice
	(1)	(2)	(3)	(4)	(5)
LA × Post-LFW	0.091***	0.092***	0.092***	0.122***	1.757***
	(0.031)	(0.030)	(0.030)	(0.031)	(0.406)
log(Worker Mins.)		-0.003	-0.002	-0.006	-0.011
		(0.008)	(0.008)	(0.008)	(0.069)
log(Worker Shifts)		0.195***	0.193***	0.197***	1.249***
		(0.006)	(0.006)	(0.005)	(0.056)
log(Store Demand)			0.018**	0.034***	0.368***
			(0.007)	(0.008)	(0.091)
log(Store Labor Supply)			0.023***	0.068***	0.758***
			(0.006)	(0.006)	(0.073)
log(Store Op. Mins)			0.070	0.157***	2.227***
			(0.044)	(0.049)	(0.568)
log(Store Mgr. Edits)				-0.139***	-1.911***
				(0.005)	(0.083)
Observations	4,038,975	4,038,975	4,038,975	4,038,975	4,038,975
Adjusted R^2	0.691	0.715	0.715	0.719	0.744
Store FEs	✓	✓	✓	✓	✓
Employee FEs	✓	✓	✓	✓	✓
Company-Month FEs	✓	✓	✓	✓	✓

Notes: The estimates above correspond to our difference-in-differences estimates associated with Equation **??**. This sample includes workers with non-missing wages who were *not* paid the minimum wage during the month prior to the LFW's effective date. In addition to the fixed effects described above, all regressions include the following store-level control variables: the (log) of total operating days, total operating duration in minutes, and the demand forecast (which is converted into optimal labor minutes by the AI tool). Standard errors that are double clustered at the store and company-year-month levels are presented in parentheses. *, **, and *** imply that coefficients are significant at the 10%, 5%, and 1% levels, respectively. Variable definitions are provided in Appendix B.

TABLE A7. Effects of July 2022 Minimum Wage Increase on Schedule Predictability

	log(Avg. Adv. Notice)				Avg. Adv. Notice
	(1)	(2)	(3)	(4)	(5)
LA × Post MW (2022)	0.005	0.000	-0.001	0.003	0.278
	(0.017)	(0.016)	(0.016)	(0.016)	(0.191)
log(Worker Mins.)		0.246***	0.246***	0.244***	2.333***
		(0.032)	(0.032)	(0.032)	(0.301)
log(Worker Shifts)		0.004	0.004	0.006	0.055
		(0.024)	(0.024)	(0.024)	(0.181)
log(Store Demand)			0.013	0.026***	0.279***
			(0.009)	(0.009)	(0.102)
log(Store Labor Supply)			-0.002	0.039***	0.422***
			(0.012)	(0.012)	(0.126)
log(Store Op. Mins)			0.019	0.041	0.535*
			(0.034)	(0.032)	(0.310)
log(Store Mgr. Edits)				-0.122***	-1.716***
				(0.006)	(0.079)
Observations	3,748,505	3,748,505	3,748,505	3,748,505	3,748,505
Adjusted R^2	0.543	0.593	0.593	0.594	0.690
Store FEs	✓	✓	✓	✓	✓
Employee FEs	✓	✓	✓	✓	✓
Company-Month FEs	✓	✓	✓	✓	✓

Notes: The estimates above correspond to difference-in-differences estimates examining the effect of the July 1, 2022, minimum wage increase (from $15 to $16.04) on schedule predictability. We estimate Equation **??** using a symmetric 12-month window (6 months pre- and post-July 2022). The treatment indicator equals one for Los Angeles stores after July 2022. The dependent variable is the log of average advance notice in days in Columns (1)-(4) and advance notice in levels in Column (5). All specifications include the full set of fixed effects (worker, store, and company-month) and control variables from Column 4 of Table **??**. This placebo test examines whether minimum wage changes alone affect scheduling practices in the absence of the Los Angeles Fair Workweek requirements. Standard errors that are double clustered at the store and company-year-month levels are presented in parentheses. *, **, and *** imply that coefficients are significant at the 10%, 5%, and 1% levels, respectively. Variable definitions are provided in Appendix B.

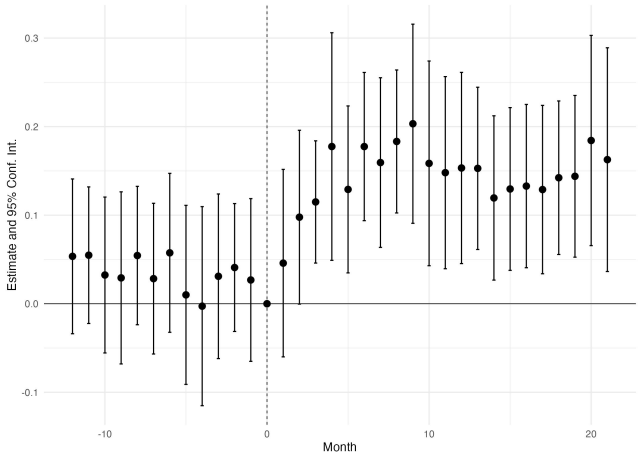
TABLE A8. Robustness Tests: Alternative Time Windows and Sample Restrictions

	log(Avg. Adv. Notice)			
	(1)	(2)	(3)	(4)
LA × Post-LFW	0.088***	0.088***	0.085***	0.085***
	(0.020)	(0.019)	(0.018)	(0.018)
log(Worker Mins.)	0.216***	0.212***	0.204***	0.203***
	(0.019)	(0.018)	(0.016)	(0.015)
log(Worker Shifts)	0.028*	0.031**	0.033***	0.034***
	(0.015)	(0.014)	(0.013)	(0.012)
log(Store Demand)	0.015**	0.014**	0.017**	0.017***
	(0.007)	(0.007)	(0.007)	(0.007)
log(Store Labor Supply)	0.034***	0.033***	0.034***	0.036***
	(0.008)	(0.008)	(0.007)	(0.007)
log(Store Op. Mins)	0.066**	0.036	0.005	0.007
	(0.028)	(0.029)	(0.020)	(0.019)
log(Store Mgr. Edits)	-0.128***	-0.127***	-0.128***	-0.129***
	(0.004)	(0.004)	(0.004)	(0.004)
Time Window	[-12,11]	[-Inf,11]	[-Inf,15]	[-Inf,17]
Observations	8,323,388	8,671,684	10,033,690	10,704,782
Adjusted R^2	0.570	0.568	0.563	0.560
Store FEs	✓	✓	✓	✓
Employee FEs	✓	✓	✓	✓
Company-Month FEs	✓	✓	✓	✓

Notes: The estimates above correspond to our difference-in-differences estimates associated with Equation **??** using alternative analysis windows. The dependent variable is the log of average advance notice in days. Column (1) uses a symmetric 24-month window (12 months pre- and post-implementation), while Columns (2)-(4) use asymmetric windows that maintain the full pre-period with progressively longer post-periods. All specifications include the full set of fixed effects (worker, store, and company-month) and control variables from Column 4 of Table **??**. Standard errors that are double clustered at the store and company-year-month levels are presented in parentheses. *, **, and *** imply that coefficients are significant at the 10%, 5%, and 1% levels, respectively. Variable definitions are provided in Appendix B.

H. Additional Estimates

FIGURE A1. Event Study Plot for Schedule Predictability (Wage Sample)



Notes: The above figure presents event-study coefficients associated with Equation **??** estimated on our sample where wages are observed. Each point represents the coefficient associated with β_k, which is the effect of the LFW on the (log) average amount of advance notice in days, which is the average amount of advance notice for all shifts scheduled for the focal worker. Estimates are relative to the focal month of the FWL, which is indicated by the dashed vertical line. All worker-level and store-level control variables are included (See the final column of Table **??**). The bands around estimates are 95% confidence intervals that are constructed using standard errors that are double clustered at the store and company-year-month levels.

I. Results from Matched Samples

I.1. Worker-Level Results

TABLE A9. Effects on Schedule Predictability (Matched Sample)

	log(Avg. Adv. Notice)				Avg. Adv. Notice
	(1)	(2)	(3)	(4)	(5)
LA × Post-LFW	0.083***	0.084***	0.085***	0.096***	1.348***
	(0.022)	(0.021)	(0.021)	(0.021)	(0.263)
log(Worker Mins.)		-0.102***	-0.102***	-0.079***	-0.569**
		(0.031)	(0.030)	(0.026)	(0.265)
log(Worker Shifts)		0.233***	0.233***	0.207***	1.448***
		(0.034)	(0.034)	(0.030)	(0.278)
log(Store Demand)			-0.042	-0.026	-0.484
			(0.028)	(0.032)	(0.441)
log(Store Labor Supply)			0.002	0.027*	0.252
			(0.016)	(0.015)	(0.169)
log(Store Op. Mins)			0.089	0.107	1.562
			(0.139)	(0.138)	(1.641)
log(Store Mgr. Edits)				-0.129***	-1.526***
				(0.008)	(0.091)
Adjusted R^2	0.669	0.679	0.679	0.691	0.786
Store FEs	✓	✓	✓	✓	✓
Employee FEs	✓	✓	✓	✓	✓
Company-Month FEs	✓	✓	✓	✓	✓

Notes: The estimates above correspond to our difference-in-differences estimates associated with Equation **??** estimated on our matched sample. This sample is constructed by first calculating pre-treatment worker-level variables (average wages, total shifts, and total minutes worked) and store-level variables (workload minutes, labor supply, scheduled labor minutes, operating minutes, and managerial edits). We then implement nearest-neighbor matching with a probit distance metric that exactly matches workers on part-time status, managerial status, and company affiliation. Within these strata, it finds the closest matches based on pre-treatment characteristics, Census zip-code-level retail employment share, and log per capita income. The dependent variable is the log of average advance notice in days, calculated first at the shift level and then averaged to the worker-month level. In addition to the fixed effects described above, all regressions include the following store-level control variables: the (log) of total operating days, total operating duration in minutes, and the demand forecast. Standard errors that are double clustered at the store and company-year-month levels are presented in parentheses. *, **, and *** imply that coefficients are significant at the 10%, 5%, and 1% levels, respectively. The number of observations is dropped based on the request of our data providers for our matched sample. Variable definitions are provided in Appendix B.

TABLE A10. Heterogeneous Effects on Schedule Predictability (Matched Sample)

	log(Avg. Adv. Notice)							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
LA × Post-LFW	0.130***	0.224***	0.097***	0.113***	0.101***	0.101***	0.249***	-0.080
	(0.030)	(0.046)	(0.021)	(0.023)	(0.022)	(0.023)	(0.049)	(0.117)
LA × Post-LFW × Hourly Wage		-0.010***					-0.013***	0.004
		(0.003)					(0.003)	(0.005)
LA × Post-LFW × Part-Time				-0.044*				
				(0.023)				
LA × Post-LFW × Male						0.001		
						(0.023)		
Adjusted R^2	0.677	0.679	0.693	0.694	0.690	0.690	0.676	0.699
Store FEs	✓	✓	✓	✓	✓	✓	✓	✓
Employee FEs	✓	✓	✓	✓	✓	✓	✓	✓
Company-Month FEs	✓	✓	✓	✓	✓	✓	✓	✓

Notes: The estimates above correspond to our heterogeneous effects analyses using difference-in-differences estimates associated with Equation **??** at the worker-month level. The dependent variable is the log of average advance notice in days, calculated first at the shift level and then averaged to the worker-month level. The matched sample is constructed by first calculating pre-treatment worker-level variables (average wages, total shifts, and total minutes worked) and store-level variables (workload minutes, labor supply, store operating minutes, and managerial edits). We then implement nearest-neighbor matching with a probit distance metric that exactly matches workers on part-time status, managerial status, and company affiliation. Within these strata, it finds the closest matches based on pre-treatment characteristics, Census zip-code-level retail employment share, and log per capita income. In addition to the fixed effects described above, all regressions include the following store-level control variables: the (log) of total scheduled minutes, shifts, store demand forecasts, labor supply, operating minutes, and manager edits. Standard errors that are double clustered at the store and company-year-month levels are presented in parentheses. *, **, and *** imply that coefficients are significant at the 10%, 5%, and 1% levels, respectively. The number of observations is dropped based on the request of our data providers for our matched sample. Variable definitions are provided in Appendix B.

TABLE A11. Effects on Schedule Stability (Matched Sample)

	Shift Duration Variability	Weekly Hours Variability	Clopening Shifts	Unstable Start Times SHifts
	(1)	(2)	(3)	(4)
LA × Post-LFW	-0.309	-0.017	-0.002	-0.006
	(0.277)	(0.014)	(0.003)	(0.010)
Adjusted R^2	0.289	0.179	0.387	0.593
Store FEs	✓	✓	✓	✓
Employee FEs	✓	✓	✓	✓
Company-Month FEs	✓	✓	✓	✓

Notes: The estimates above correspond to our difference-in-differences estimates associated with Equation **??** estimated on our matched sample. The matched sample is constructed by first calculating pre-treatment worker-level variables (average wages, total shifts, and total minutes worked) and store-level variables (workload minutes, labor supply, store operating minutes, and managerial edits), then implementing nearest-neighbor matching with a probit distance metric that exactly matches workers on part-time status, managerial status, and company affiliation, and within these strata, finds the closest matches based on these pre-treatment characteristics as well as Census zip-code-level retail employment share and log per capita income. The dependent variables measure different aspects of schedule stability at the worker-month level: Column (1) is the standard deviation of shift durations normalized by total shifts, Column (2) is the standard deviation of weekly hours normalized by total shifts, Column (3) is the share of consecutive shifts with less than 10 hours of rest between them ("clopening" shifts), and Column (4) is the share of shifts that start more than one hour earlier or later than the same day-of-week shift in the previous week (conditional on working both weeks). In addition to the fixed effects described above, all regressions include the following store-level control variables: the (log) of total scheduled minutes, shifts, store demand forecasts, labor supply, operating minutes, and manager edits. Standard errors that are double clustered at the store and company-year-month levels are presented in parentheses. *, **, and *** imply that coefficients are significant at the 10%, 5%, and 1% levels, respectively. The number of observations is dropped based on the request of our data providers for our matched sample. Variable definitions are provided in Appendix B.

TABLE A12. Effects on Worker Outcomes (Matched Sample)

	log(Worker Mins.) (1)	log(Worker Shifts) (2)	Approved Availability Change (3)
LA × Post-LFW	0.011	0.003	0.019
	(0.014)	(0.013)	(0.043)
Adjusted R^2	0.616	0.551	0.596
Store FEs	✓	✓	✓
Employee FEs	✓	✓	✓
Company-Month FEs	✓	✓	✓

Notes: The estimates above correspond to our difference-in-differences estimates associated with Equation **??**. The matched sample is constructed by first calculating pre-treatment worker-level variables (average wages, total shifts, and total minutes worked) and store-level variables (workload minutes, labor supply, store operating minutes, and managerial edits), then implementing nearest-neighbor matching with a probit distance metric that exactly matches workers on part-time status, managerial status, and company affiliation, and within these strata, finds the closest matches based on these pre-treatment characteristics as well as Census zip-code-level retail employment share and log per capita income. The dependent variables log(Mins.) and log(Shifts) are the log of total scheduled labor minutes and scheduled shifts, respectively. The underlying sample is the "full" sample as described in Section **??**. In addition to the fixed effects described above, the first two regressions include the following store-level control variables: the (log) of total operating days, total operating duration in minutes, and the demand forecast. Standard errors that are double clustered at the store and company-year-month levels are presented in parentheses. *, **, and *** imply that coefficients are significant at the 10%, 5%, and 1% levels, respectively. The number of observations is dropped based on the request of our data providers for our matched sample. Variable definitions are provided in Appendix B.

I.2. Store-Level Results

TABLE A13. Effects on Store Outcomes (Matched Sample)

	PT Mins. Ratio (1)	PT Shifts Ratio (2)	log(Store Op. Mins) (3)	Op. Days (4)	Hires (5)	Turnover (6)
LA × Post-LFW	-0.011	-0.011	-0.017	-0.002*	0.421	0.307
	(0.018)	(0.019)	(0.030)	(0.001)	(0.451)	(0.281)
Adjusted R^2	0.723	0.761	0.996	0.998	0.288	0.244
Store FEs	✓	✓	✓	✓	✓	✓
Company-Month FEs	✓	✓	✓	✓	✓	✓

Notes: The estimates above correspond to our difference-in-differences estimates associated with Equation **??**. The underlying sample contains the stores that result from our worker-level matching. In addition to the fixed effects described above, all regressions include the following store-level control variables (except where the control is the dependent variable of interest): the (log) of total operating days, total operating duration in minutes, and the demand forecast. Standard errors that are double clustered at the store and company-year-month levels are presented in parentheses. *, **, and *** imply that coefficients are significant at the 10%, 5%, and 1% levels, respectively. The number of observations is dropped based on the request of our data providers for our matched sample. Variable definitions are provided in Appendix B.