Labor market tightness and firm profitability: Evidence from the hotel sector

Akash Bhatt Christopher D. A. Boone Michael T. Paz*

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Abstract

Using establishment-level data from U.S. hotels, we study how firm profitability varies with local labor market tightness. Our estimates capture the combined effects on input costs and revenue. When local unemployment falls, wages and hotel labor costs rise, with wage growth steepest at very low unemployment. But revenue rises considerably more, so total profit and profit margins increase, and labor costs as a share of revenue decline. Revenue gains come mainly from higher room prices rather than occupancy, especially in the tightest markets. We find no evidence of a profit squeeze, even at unemployment rates below 3%.

Keywords: labor market tightness; profits; labor share; full employment; hotels
JEL codes: E24, E32, J23, J31, L83

*Bhatt: University of Massachusetts Amherst, akashbhatt@umass.edu. Boone: University of Massachusetts Amherst, cboone@umass.edu. Paz: Purdue University Northwest, paz10@pnw.edu. We thank participants at the Association for Social Economics (ASE) session at ASSA 2026 for helpful feedback. We thank Li Sutherland for excellent research assistance.

1 Introduction

How aggressively should policymakers target low levels of unemployment? There is a substantial body of evidence documenting benefits for workers from a "high-pressure economy" or periods of full employment (Okun 1973; Hotchkiss and Moore 2022). Falling unemployment rates lead to increases in wages, and the effects are particularly strong in very tight labor markets. There are also distributional consequences: wages at the lower end of the distribution appear more responsive to changes in unemployment, such that tighter labor markets can reduce inequality in worker earnings (Bivens and Zipperer 2018; Aaronson et al. 2019; Autor et al. 2023).

On the other hand, the distributional effects between capital and labor are less well understood, and we have little evidence on the relationship between tight labor markets and firm financial performance. Declines in unemployment generally correspond to increases in overall demand, boosting revenue and potentially contributing to higher profit. But at low rates of unemployment, rapid increases in wages could potentially cause a "profit squeeze" if costs increase faster than revenue. This concern is reflected in the "labor shortage" discourse that arose in the U.S. during the post-pandemic recovery (Domash and Summers 2022; Madgavkar et al. 2024). It is also potentially consistent with evidence suggesting that the aggregate labor share, despite displaying moderately countercyclical behavior overall, may rise in the later years of expansions (Boddy and Crotty 1975; Shao and Silos 2014).[1]

In this paper, we focus on a single sector and provide micro-level evidence on the relationship between labor market conditions and firm financial performance. Using annual establishment-level data from the U.S. hotel sector, we examine the relationship between local unemployment rates and firm revenue, costs, and profit. Several features of the hotel sector make this a unique setting for studying firm performance: hotels are relatively labor-

[1] Falling margins during booms also have a long theoretical tradition, whether driven by worker bargaining power in classical profit-squeeze theories (Goodwin 1967) or by sticky prices and countercyclical markups in New Keynesian models (Rotemberg and Woodford 1999). The empirical behavior of markups and profit margins over the business cycle remains contested (Bils 1987; Nekarda and Ramey 2020).

intensive and reliant on low-wage labor, which could make them particularly vulnerable to cost pressure driven by labor market tightening; on the other hand, pricing is relatively flexible, and firms face meaningful capacity constraints, both of which may amplify the revenue gains associated with high consumer demand. To the extent that wages and consumer demand both vary with local unemployment rates, our estimates capture the combined impact of the labor cost channel as well as the demand channel. This total effect is arguably the policy-relevant one when it comes to debates about running a high-pressure economy.

Our results clearly point against any sort of profit squeeze in this sector. As expected, tight labor markets lead to increases in wages and hotel labor costs. But the gains in revenue are more than enough to offset this cost pressure. Even at very low rates of unemployment, tighter labor markets are associated with higher profit margins as well as total profit. Indeed, the profit-unemployment relationship appears roughly linear, with no evidence of nonlinear effects at low rates of unemployment. While increases in both occupancy rates and room prices contribute to the revenue gains, price increases account for the majority of the effect.

2 Data and Empirical Strategy

We use establishment-level panel data from the U.S. hotel industry. These hotel financial data were obtained from a commercial business services provider and include detailed annual information on labor costs, revenues, expenditures, and profits at the property level. Anonymized property identifiers allow us to link establishments across years, and location information (city and zip code) allows us to merge in local labor market characteristics.

Our main analysis focuses on a balanced panel of 1,876 properties across 232 Metropolitan Statistical Areas (MSAs) for the years 2010-2019. We merge in MSA-level unemployment rates from the Local Area Unemployment Statistics (LAUS; U.S. Bureau of Labor Statistics 2025) and average monthly earnings for workers in Accommodation and Food Services from the Quarterly Workforce Indicators (QWI; U.S. Census Bureau 2025). For robustness checks,

we also use a larger unbalanced panel and extend the sample through 2023 to include the Covid-era crisis and subsequent recovery.

Our primary outcomes are scaled by the number of hotel rooms and expressed as "per available room" (PAR). These measures include: total revenue PAR (TRevPAR); gross operating profit PAR (GOPPAR), which captures operating profitability while abstracting from financing and ownership structure; total labor costs PAR; and total non-labor operating expenditure PAR. We also examine *rooms* revenue PAR (RevPAR), which can be decomposed into price (the average daily room rate or ADR) times quantity (average occupancy rate, or number of room-nights sold divided by total available room-nights).

Our empirical strategy relates hotel-level outcomes to local unemployment rates using a flexible reduced-form specification. We regress each outcome measure on indicators for bins of the local unemployment rate, controlling for hotel and year fixed effects. This approach lets us capture nonlinear responses to labor market conditions, particularly at very low unemployment rates where profit squeeze effects, if present, are most likely to emerge. We estimate the following specification for hotel i located in MSA m in year t:

$$y_{imt} = \sum_{k} \beta_k \cdot \mathbf{1}[\text{UR}_{mt} \in \text{bin}_k] + \alpha_i + \gamma_t \cdot S_i + \varepsilon_{imt} \tag{1}$$

where α_i are hotel fixed effects; $\gamma_t \cdot S_i$ are segment-by-year fixed effects, where each property has been classified into one of six common hotel chain segments (Economy, Midscale, Upper Midscale, Upscale, Upper Upscale, or Luxury); and UR_{ct} is the average unemployment rate in MSA m during year t. The unemployment rate is partitioned into seven bins: 2-3%, 3-4%, 4-5%, 5-6%, 6-7%, 7-8%, and 8% or above.[2] Coefficient estimates are interpreted relative to the median unemployment bin (5-6%), the omitted category. The bin specification lets us examine whether there is a sharp change in slope at low unemployment. Standard errors are clustered at the MSA level.

[2]We drop 6 observations with unemployment below 2%; the results are almost identical if we instead assign them to the lowest bin or drop that MSA entirely.

3 Results

3.1 Wages and labor costs rise in tight labor markets

Figure 1 shows how worker earnings and firm labor costs vary with labor market conditions, and the corresponding regression results are reported in Table 1. The results in panel A of Figure 1 suggest that workers' earnings vary nonlinearly with labor market tightness: falling unemployment leads to higher earnings when unemployment is relatively low, but the correlation disappears in slacker labor markets.

The marginal effect of an increase in unemployment corresponds to the slope of the line or the difference between adjacent coefficients. We test for differences in these slopes and find statistically significant increases in the marginal effect on earnings as unemployment falls from 4-5% to 3-4%, and again from 3-4% to 2-3%.[3]

Turning to the hotel-level results, panel B shows that firm labor costs also rise as unemployment falls, and the effect is statistically significant throughout the range of unemployment bins. We again find nonlinear effects, but only at lowest unemployment category: the effect of dropping from the 3-4% range to 2-3% is larger than the effects at higher levels. Because hotel labor costs depend on staffing levels as well as wages, the increases in panel B partly reflect higher employment during periods of strong local demand. But the steeper rise between the lowest bins is consistent with wage pressure in panel A flowing through to firm labor costs in tight labor markets.

3.2 Revenue rises faster than labor costs, increasing profit

Do rising labor costs in tighter labor markets lead to a profit squeeze? On the contrary, the results in Figure 2 point in the opposite direction: falling unemployment is associated with increases in total profit (GOPPAR, panel A), driven by increases in total revenue (TRevPAR,

[3] In the supplementary online appendix, we report marginal effects (Figures A1–A4) and results of the tests for nonlinear effects (Table A2).

panel B). Relative to the 5-6% reference bin, total revenue at 2-3% unemployment increases by 17 log points (+18.5%) and gross profit by about 28 log points (+32%). Panel C reproduces the labor cost estimates from Figure 1 on a common y-axis for comparison. Non-labor costs (panel D) also respond to unemployment, with magnitudes similar to labor costs.

Across the panels, revenue responds more than costs. In dollars, TRevPAR increases by roughly $15 at 2-3% unemployment (relative to the reference category), and we can decompose the additional revenue into changes in profit and costs. While labor and non-labor costs rise by about $2.20 and $2.30, respectively, the remaining 70% of the increase in TRevPAR flows through to gross profit (Appendix Figure A5 and Table A3).

We also construct labor and profit *shares* by scaling labor costs and gross profit by total revenue.[4] These results are displayed in Figure 3. Despite the increase in total labor costs at lower unemployment rates, the labor share of revenue falls, and the profit share increases. The latter is equivalent to a gross operating margin, meaning tighter labor markets correspond to both higher total profit and higher profit margins.

Unlike total labor costs, none of the other outcomes in Figures 2 and 3 show significant nonlinearities. Even in extremely tight labor markets, where nonlinear wage effects raise labor costs, the accompanying revenue gain more than compensates and profits continue to rise as unemployment falls.[5]

3.3 Decomposing price versus quantity effects

As a final exercise, we examine the relative contribution to revenue of prices versus quantities. We restrict attention to the rooms department, where revenue decomposes cleanly into occupancy (quantity) and ADR (price). We separately regress log RevPAR, log ADR, and log occupancy on the unemployment bins. Because RevPAR = ADR $\times$ occupancy, the

[4] We find similar results if we instead construct labor and profit shares scaled by a measure of value added (computed as revenue minus cost-of-goods-sold).

[5] We run several robustness checks and display the results in the online appendix. Our findings are robust to using the full unbalanced panel (Table A5), to extending the sample through 2023 (Table A6), and to excluding MSAs with a large share of employment in Accommodation and Food Services (Table A7).

latter two coefficients sum to the first.

Figure 4 shows that both ADR and occupancy rise as unemployment falls, but the estimated effect on ADR is larger, indicating that prices account for the larger portion of the revenue effect. Relative to the median bin of 5-6% unemployment, roughly 90% of the increase in rooms revenue at 2-3% unemployment is attributable to higher room rates. We also see evidence of nonlinear effects: moving from the second-lowest to the lowest bin, the marginal effect of unemployment on ADR increases in magnitude, while the effect for occupancy flips sign (Figure A4). The overall pattern is potentially consistent with hotels hitting binding capacity constraints as occupancy approaches its ceiling, while flexible pricing allows them to sustain revenue gains by raising room rates.

4 Conclusion

Our results point against a labor-driven squeeze on profits in the hotel sector. Tighter local labor markets do raise wages and hotel labor costs, with the increases growing steeper at very low unemployment. But revenue rises considerably more, so both total profits and profit margins increase as labor markets tighten.

How do we reconcile these results with industry concerns that tight labor markets squeeze profits? It is possible that these concerns extend beyond short-run profit considerations to include, for example, impacts on worker bargaining or political power (Kalecki 1943). Another possibility may simply be that the counterfactuals differ: higher wages raise labor costs, and, *all else equal*, higher costs reduce profits. This might be the right perspective for analyzing a policy that increases wages without affecting demand. But in the context of macroeconomic stabilization and aggregate demand management, policies that move unemployment will likely influence demand as well. Our analysis combines both channels, and the results suggest that demand effects dominate, with falling unemployment driving profits higher even in the tightest labor markets.

Two aspects of our research design should be kept in mind when interpreting our results. Although intended to inform thinking about countercyclical policy, our estimates are identified off of regional variation, not the national business cycle. Some of the common national-level variation our design removes, including monetary policy, the investment cycle, and changes in non-local demand, could be important for the aggregate relationship between unemployment and profit. Hotels may also respond differently than other industries. In particular, flexible pricing and binding capacity constraints could mean that hotels are unusually able to convert strong demand into revenue. Whether similar effects hold in other sectors remains an open question.

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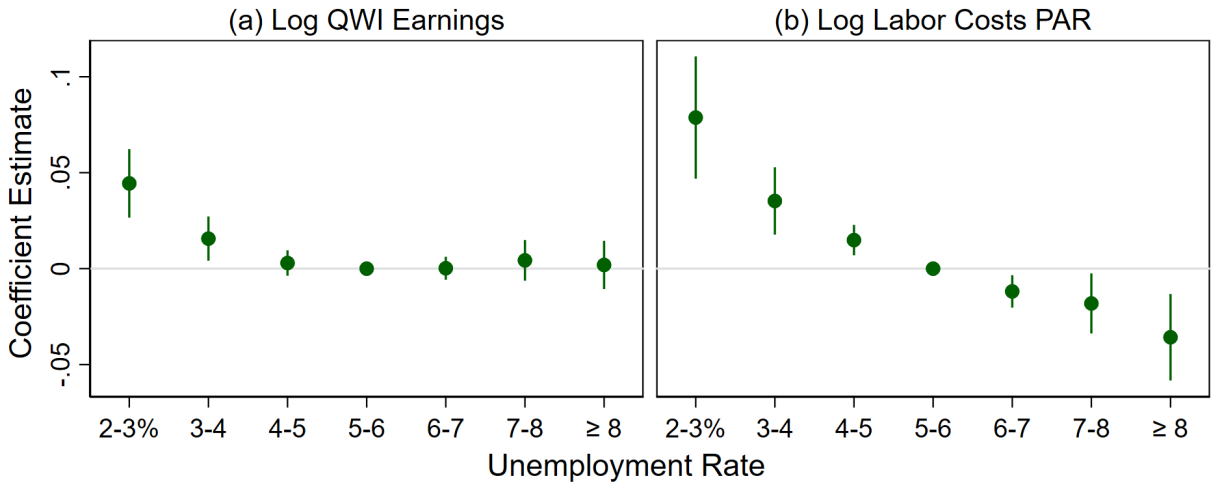
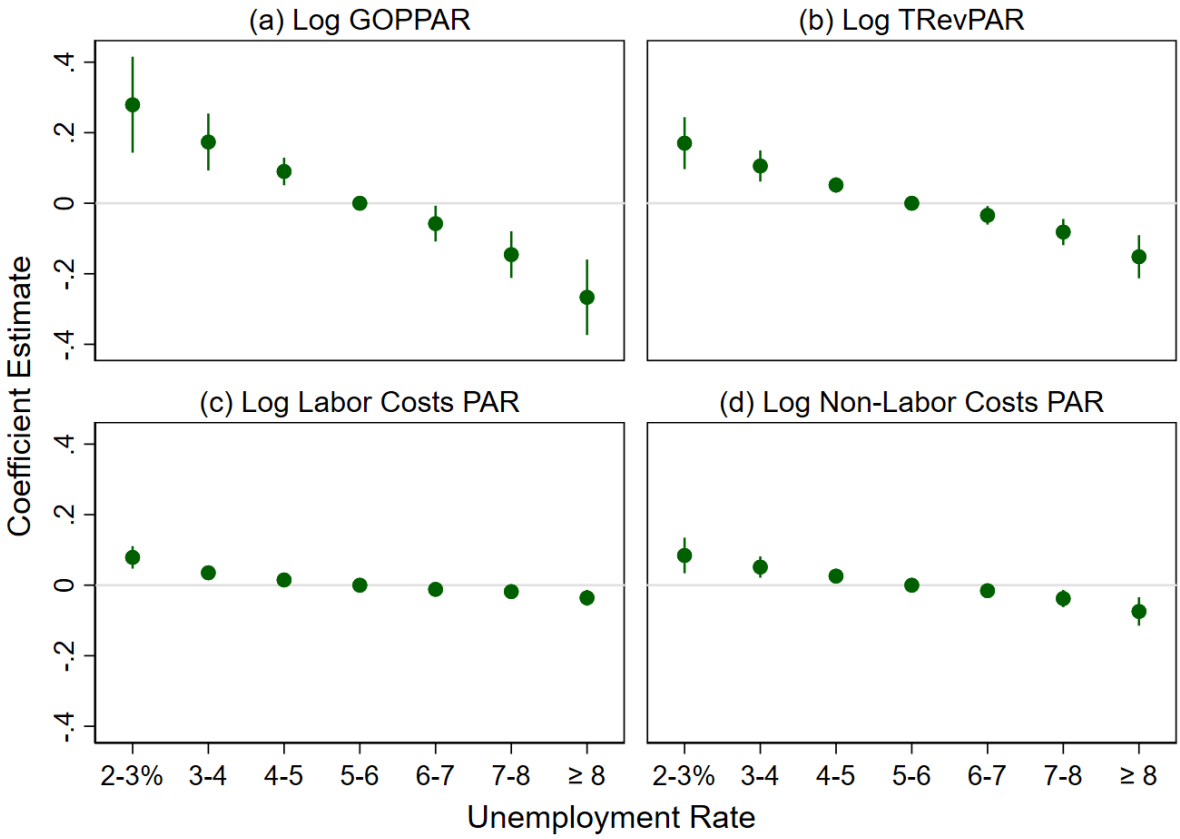
Figure 1: Effects of unemployment on worker earnings and firm labor costs



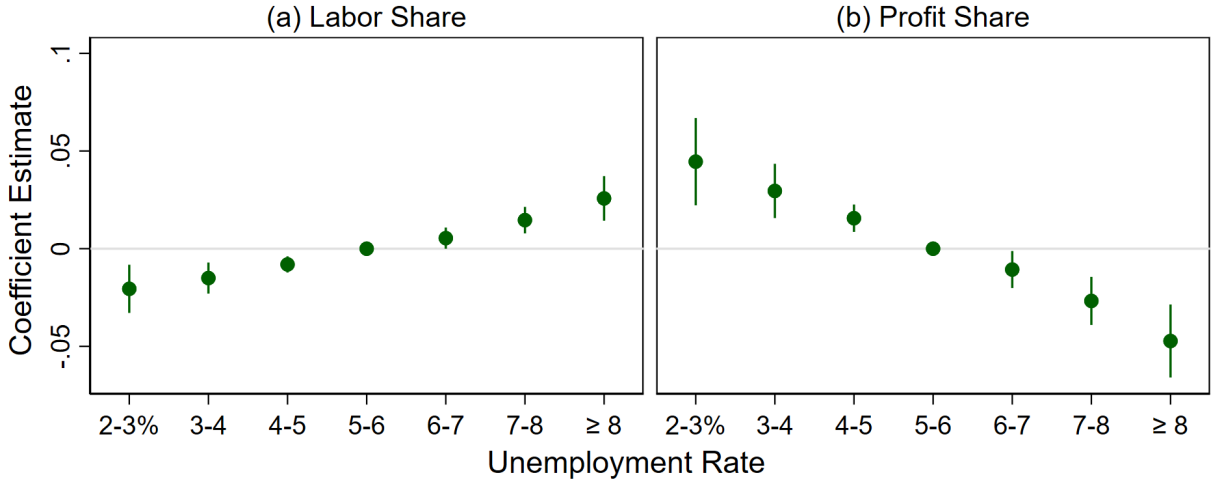
Notes: Panel (a): The dependent variable is log average monthly earnings per worker in NAICS sector 72 (Accommodation and Food Services); the specification is estimated at the MSA-year level and restricted to MSAs present in the property-level regressions; includes MSA fixed effects. Panel (b): The dependent variable is log total labor costs per available room; the specification is estimated at the property-year level for the 2010-2019 balanced panel and includes property and chain segment-by-year fixed effects. The figures plot the point estimates and 95% confidence intervals from the unemployment rate indicators in Equation 1. Full regression results are reported in Table 1. Standard errors adjusted for clustering at the MSA level.

Figure 2: Revenue, costs, and profit all increase in tight labor markets



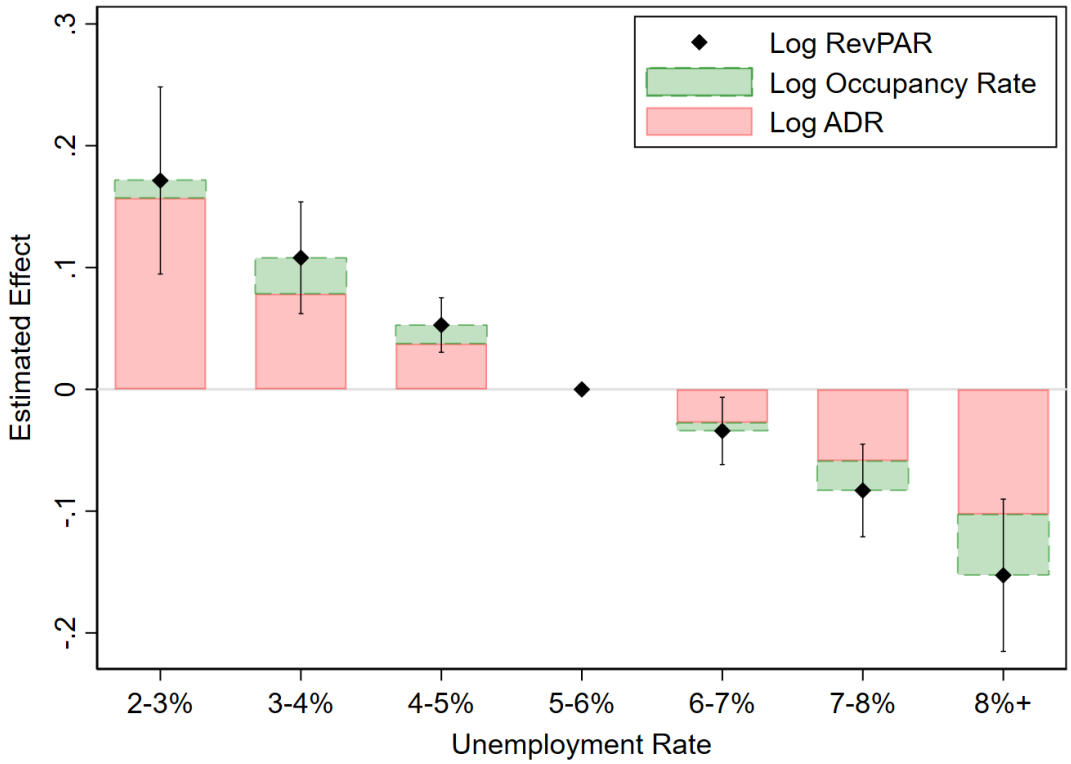
Notes: The dependent variable is: (a) log gross operating profit per available room (GOPPAR); (b) log total revenue per available room (TRevPAR); (c) log total labor costs per available room; and (d) log non-labor operating costs per available room. The four panels share a common y-axis scale; panel (c) reproduces panel (b) of Figure 1 with the axis rescaled. All specifications are estimated at the property-year level for the 2010-2019 balanced panel and include property and chain segment-by-year fixed effects. The figures plot the point estimates and 95% confidence intervals from the unemployment rate indicators in Equation 1. Full regression results are reported in Table 1. Standard errors adjusted for clustering at the MSA level.

Figure 3: Labor costs and profit as a share of total revenue



Notes: The dependent variable is: (a) labor share, defined as total labor costs divided by total revenue; and (b) profit share, defined as gross operating profit divided by total revenue. All specifications are estimated at the property-year level for the 2010-2019 balanced panel and include property and chain segment-by-year fixed effects. The figures plot the point estimates and 95% confidence intervals from the unemployment rate indicators in Equation 1. Full regression results are reported in Table 1. Standard errors adjusted for clustering at the MSA level.

Figure 4: Decomposing revenue changes into prices (ADR) and quantities (occupancy)



Notes: The figure displays the estimates from separate regressions for each of the following dependent variables: log rooms revenue per available room (RevPAR); log average daily rate (ADR); and log occupancy rate. Diamonds show point estimates and 95% confidence intervals for log RevPAR. For ADR and occupancy, the height of the individual boxes correspond to the point estimates, and the sum of those two point estimates should equal the coefficient on log RevPAR. All specifications are estimated at the property-year level for the 2010-2019 balanced panel and include property and chain segment-by-year fixed effects. The figures plot the point estimates and 95% confidence intervals from the unemployment rate indicators in Equation 1. Full regression results are reported in Table 1. Standard errors adjusted for clustering at the MSA level.

Table 1: Coefficient estimates for Figures 1–4

	(1) Log QWI Earnings	(2) Log Labor PAR	(3) Log GOPPAR	(4) Log TRevPAR	(5) Log Non-Labor PAR	(6) Labor Share	(7) GOP Share	(8) Log RevPAR	(9) Log ADR	(10) Log Occupancy
2-3%	0.0444***	0.0788***	0.279***	0.170***	0.0843***	-0.0206***	0.0446***	0.171***	0.157***	0.0147
	(0.00906)	(0.0162)	(0.0691)	(0.0374)	(0.0256)	(0.00626)	(0.0113)	(0.0392)	(0.0355)	(0.0149)
3-4	0.0157***	0.0353***	0.174***	0.106***	0.0514***	-0.0150***	0.0296***	0.108***	0.0785***	0.0295***
	(0.00584)	(0.00891)	(0.0410)	(0.0225)	(0.0153)	(0.00404)	(0.00705)	(0.0234)	(0.0194)	(0.0109)
4-5	0.00292	0.0149***	0.0901***	0.0517***	0.0258***	-0.00807***	0.0156***	0.0528***	0.0376***	0.0152***
	(0.00336)	(0.00402)	(0.0199)	(0.0110)	(0.00774)	(0.00211)	(0.00355)	(0.0114)	(0.00891)	(0.00558)
5-6	ref.	ref.	ref.	ref.	ref.	ref.	ref.	ref.	ref.	ref.
6-7	0.000201	-0.0119***	-0.0578**	-0.0343**	-0.0156*	0.00540*	-0.0107**	-0.0341**	-0.0275***	-0.00646
	(0.00304)	(0.00429)	(0.0258)	(0.0134)	(0.00798)	(0.00275)	(0.00481)	(0.0141)	(0.00977)	(0.00754)
7-8	0.00431	-0.0182**	-0.146***	-0.0816***	-0.0378***	0.0146***	-0.0267***	-0.0831***	-0.0589***	-0.0240***
	(0.00537)	(0.00795)	(0.0336)	(0.0189)	(0.0125)	(0.00344)	(0.00625)	(0.0194)	(0.0174)	(0.00911)
≥8	0.00193	-0.0358***	-0.267***	-0.152***	-0.0744***	0.0257***	-0.0473***	-0.153***	-0.103***	-0.0497***
	(0.00637)	(0.0114)	(0.0543)	(0.0310)	(0.0205)	(0.00580)	(0.00949)	(0.0319)	(0.0276)	(0.0126)
Obs.	2282	18753	18731	18754	18753	18753	18754	18754	18753	18753
Properties		1876	1876	1876	1876	1876	1876	1876	1876	1876
MSAs	229	232	232	232	232	232	232	232	232	232
R^2	0.981	0.992	0.886	0.978	0.987	0.894	0.876	0.966	0.982	0.686

Notes: Column 1 is an MSA-level regression containing MSA and year fixed effects. The remaining columns are firm-level regressions using the balanced panel for 2010-2019; specifications include firm and segment-by-year fixed effects. Standard errors adjusted for clustering at the MSA level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Online Appendix for:

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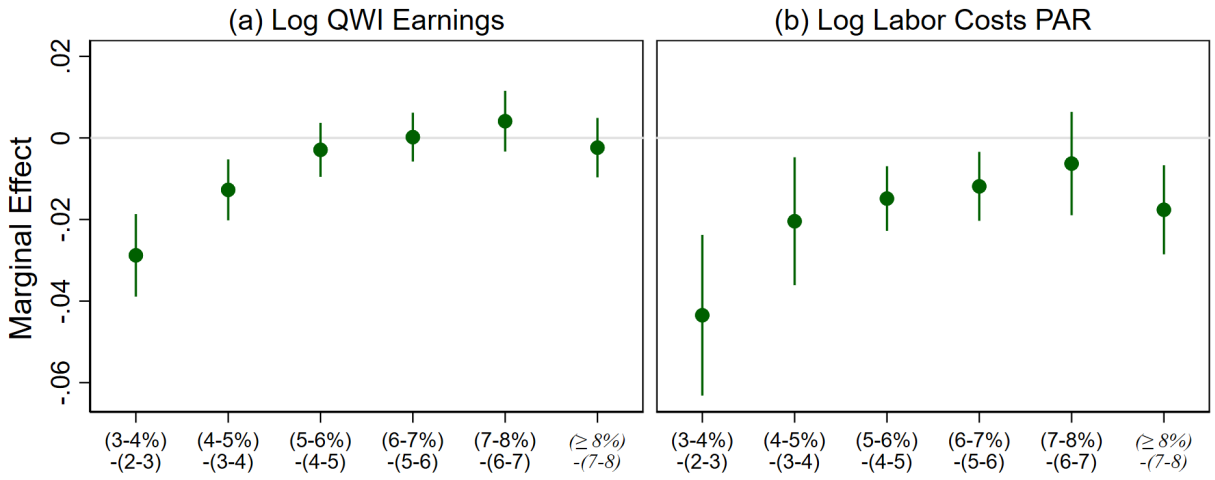
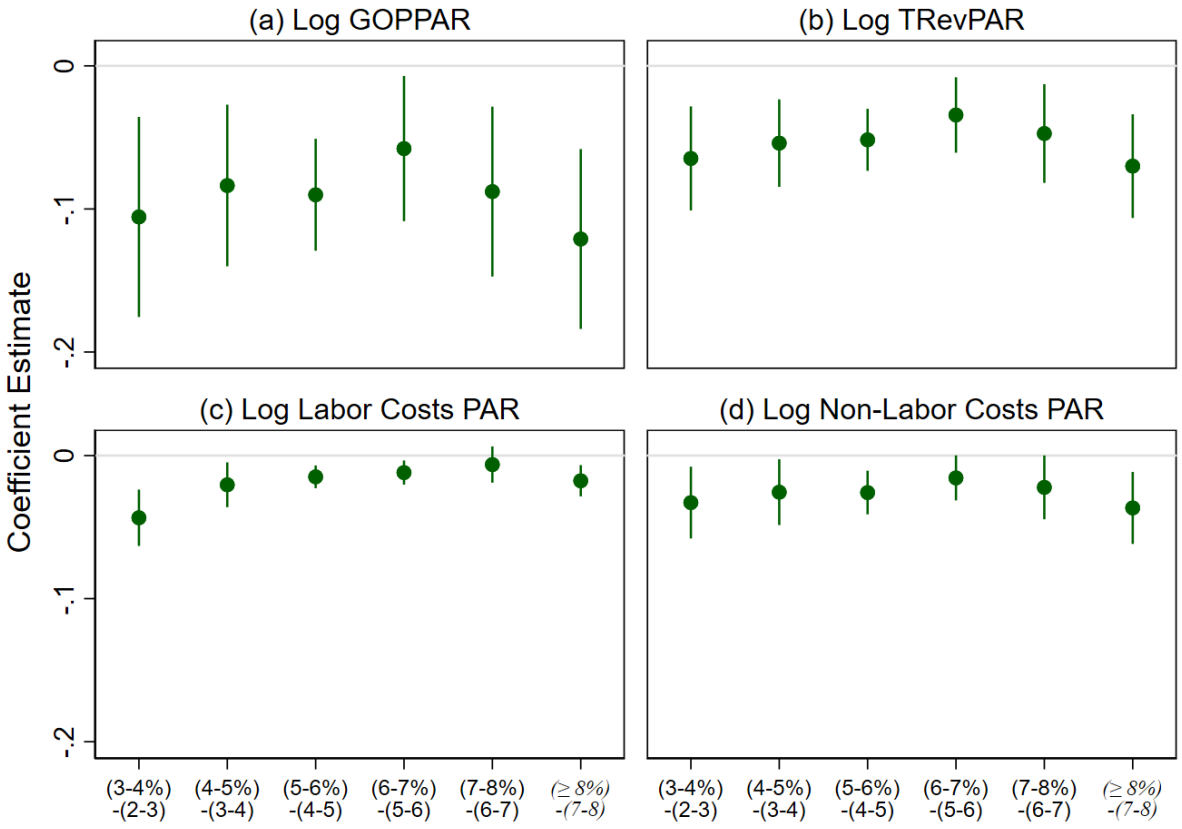
A Additional Figures and Tables

Figure A1: Marginal effects corresponding to estimates in Figure 1



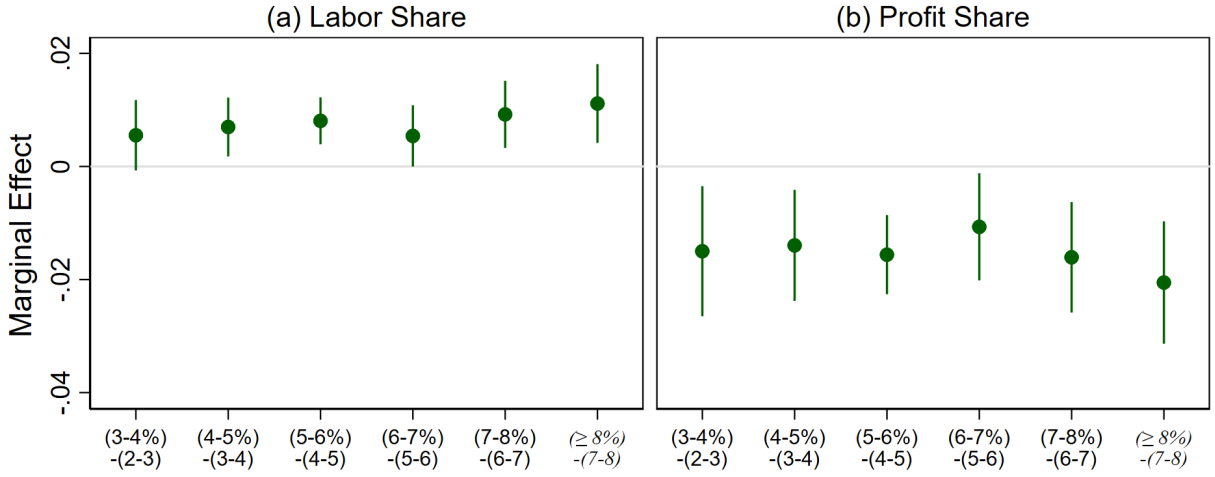
Notes: Point estimates and 95% confidence intervals for the marginal effect of raising the local unemployment rate up to the next-highest group. Values are computed as the difference between adjacent coefficients in the corresponding figure in the main paper. The magnitudes therefore represent the marginal effect of a 1-percentage-point increase in the local unemployment rate, except for the right-most point, for which the units differ. (The right-most point in each panel represents the difference between the ≥8% bin and the 7-8% bin; it is included in the figure for completeness, but should not be directly compared to the other coefficients.) See Table A2 for results of tests for significant differences in adjacent marginal effects.

Figure A2: Marginal effects corresponding to estimates in Figure 2



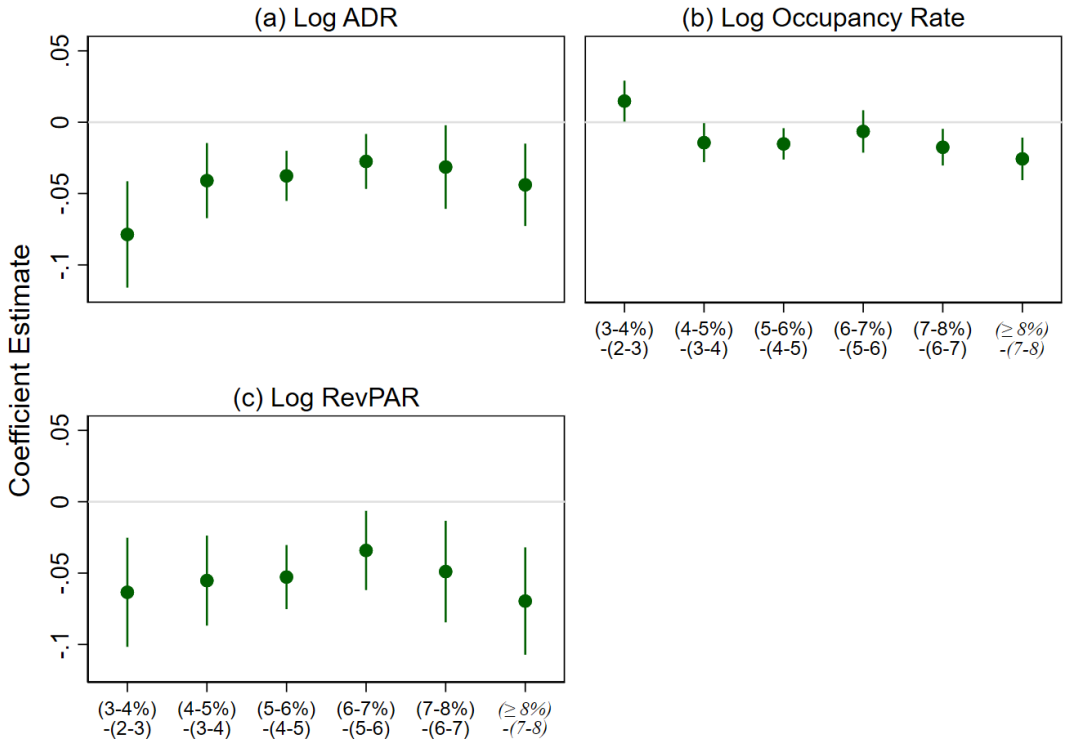
Notes: Point estimates and 95% confidence intervals for the marginal effect of raising the local unemployment rate up to the next-highest group. See Table A2 for results of tests for significant differences in adjacent marginal effects. Also see notes to Figure A1 for additional details.

Figure A3: Marginal effects corresponding to estimates in Figure 3



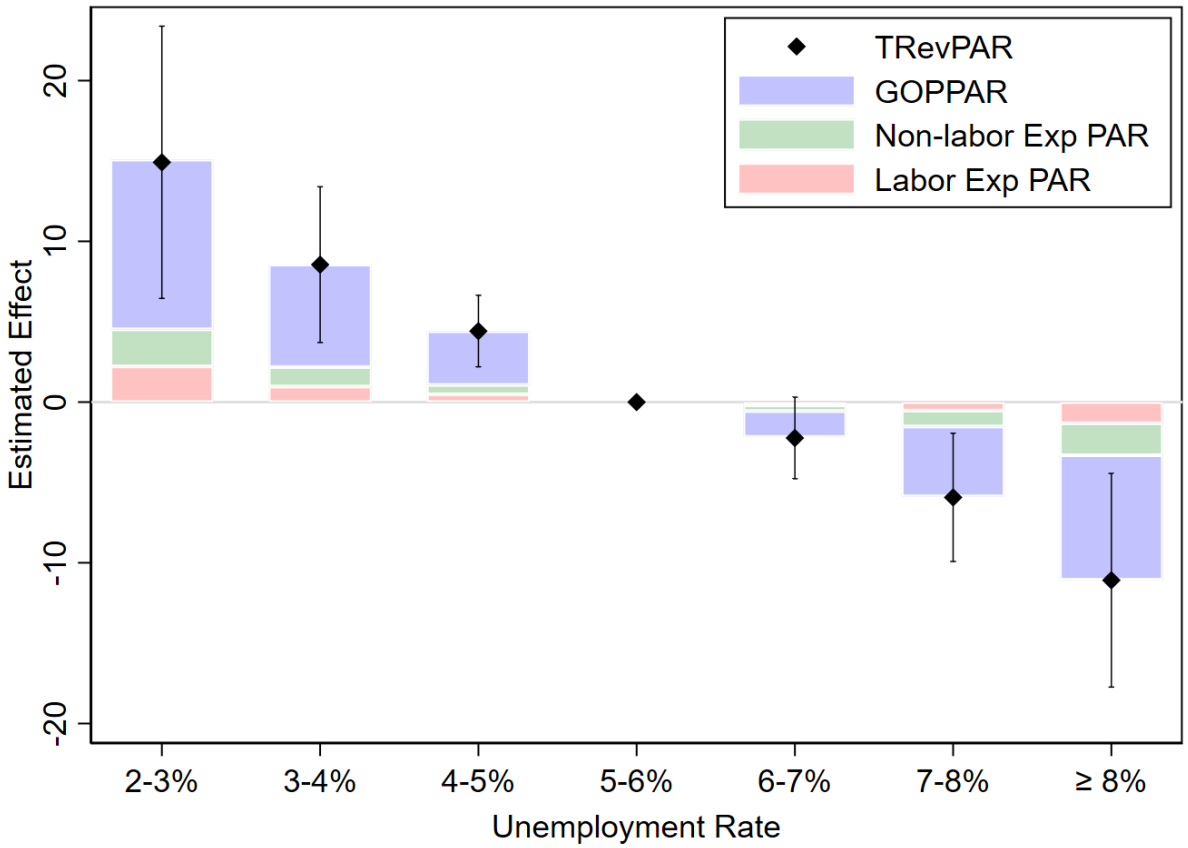
Notes: Point estimates and 95% confidence intervals for the marginal effect of raising the local unemployment rate up to the next-highest group. See Table A2 for results of tests for significant differences in adjacent marginal effects. Also see notes to Figure A1 for additional details.

Figure A4: Marginal effects corresponding to estimates in Figure 4



Notes: Point estimates and 95% confidence intervals for the marginal effect of raising the local unemployment rate up to the next-highest group. See notes to Figure A1 for additional details. Also see the results in Table A2, which indicate statistically significant differences in the estimated marginal effects at the lowest unemployment rates for both ADR as well as occupancy.

Figure A5: Decomposing revenue changes into profit and costs



Notes: The figure displays the estimates from separate regressions for each of the following four dependent variables: total revenue per available room (TRevPAR); gross operating profit per available room (GOPPAR); non-labor operating expenditure per available room; and total labor expenditure per available room. For each of the latter 3 variables, the height of the shaded box corresponds to the point estimate, and the sum of those 3 point estimates should equal the coefficient on TRevPAR. See Table A3 for the coefficient estimates. Dollar values are deflated using the CPI and expressed in constant 2010 USD.

Table A1: Definitions of main outcome variables

Term	Definition	Relationships to other variables
ADR	Average daily rate $= \frac{\text{rooms revenue}}{\text{rooms sold}}$	
Occupancy	Occupancy rate $= \frac{\text{rooms sold}}{\text{total available rooms}}$	
RevPAR	*Rooms* revenue per available room	RevPAR = ADR $\times$ Occupancy
TRevPAR	Total revenue per available room	TRevPAR = GOPPAR + Labor costs PAR + Non-labor costs PAR
Labor costs PAR	Total payroll expenses per available room	
Non-labor costs PAR	Total non-labor operating expenditure per available room	
GOP	Gross operating profit	
GOPPAR	GOP per available room	
Labor share	Labor costs as a share of total revenue	Labor share $= \frac{\text{Labor costs PAR}}{\text{TRevPAR}}$
GOP share	GOP as a share of total revenue (gross operating margin)	GOP share $= \frac{\text{GOPPAR}}{\text{TRevPAR}}$

Notes: Definitions of hotel-industry terms used in the regressions. PAR indicates that values are computed "per available room," meaning that the value is divided by the total available room-nights (which is roughly equal to 365 times the number of rooms in the hotel, since the data contain annual values).

Table A2: Nonlinear effects: p-values for testing adjacent marginal effects

	(1) Log QWI Earnings	(2) Log Labor PAR	(3) Log GOPPAR	(4) Log TRevPAR	(5) Log Non-Labor PAR	(6) Labor Share	(7) GOP Share	(8) Log RevPAR	(9) Log ADR	(10) Log Occ
3-4% (bin 2)	0.003***	0.019**	0.640	0.486	0.521	0.633	0.853	0.623	0.009***	0.001***
4-5% (bin 3)	0.019**	0.534	0.760	0.876	0.985	0.671	0.744	0.920	0.780	0.892
5-6% (bin 4)	0.489	0.548	0.144	0.186	0.291	0.286	0.288	0.149	0.266	0.339
6-7% (bin 5)	0.360	0.458	0.518	0.602	0.662	0.412	0.474	0.537	0.830	0.305
Observations	2282	18753	18731	18754	18753	18753	18754	18754	18753	18753

Notes: The table reports p-values for the test of whether the marginal effect of moving into that unemployment-rate bin (from below) equals the marginal effect of moving into the next higher bin. For example, the p-value for 3-4% (bin 2) corresponds to a test that the differences between bins 1 and 2 (the change from 2-3% to 3-4%) equals the difference between bins 2 and 3 (the change from 3-4% to 4-5%). Since the units on the highest bin (≥8%) differ, we omit the tests involving that bin.

Table A3: Decomposing revenue changes into profit and costs

	(1) TRevPAR	(2) Labor Costs PAR	(3) Non-Labor Costs PAR	(4) GOPPAR
2-3%	14.92***	2.221***	2.306***	10.56***
	(4.321)	(0.703)	(0.813)	(2.999)
3-4	8.552***	0.966**	1.213***	6.378***
	(2.472)	(0.377)	(0.451)	(1.777)
4-5	4.418***	0.482***	0.587***	3.337***
	(1.136)	(0.154)	(0.209)	(0.844)
5-6	ref.	ref.	ref.	ref.
6-7	-2.233*	-0.204	-0.355*	-1.610
	(1.295)	(0.162)	(0.214)	(1.011)
7-8	-5.930***	-0.532*	-0.989**	-4.348***
	(2.035)	(0.301)	(0.418)	(1.413)
≥8	-11.09***	-1.320***	-1.989***	-7.748***
	(3.392)	(0.429)	(0.680)	(2.436)
Obs.	18754	18753	18753	18754
Properties	1876	1876	1876	1876
MSAs	232	232	232	232
R^2	0.983	0.991	0.986	0.931

Notes: Firm-level balanced panel for 2010-2019. This table reports the coefficient estimates corresponding to the results in Figure A5. The units on the dependent variables are constant 2010 USD (deflated using the CPI). All specifications include firm and segment-by-year fixed effects. Standard errors adjusted for clustering at the MSA level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A4: Number of unique MSAs and hotels for each unemployment rate bin

	MSAs	Hotels
2-3%	61	493
3-4	167	1,506
4-5	213	1,833
5-6	211	1,663
6-7	180	1,536
7-8	166	1,433
$\geq$8	164	1,471

Notes: The table reports the number of MSAs and number of establishments that experience the indicated unemployment rate (in at least one year of the sample). Standard errors in our analyses are clustered at the MSA level. Having too few "treated" MSAs in a particular bin could raise concerns about the consistency of the standard error estimates. The table shows that each unemployment category contains at least 61 MSAs (out of 232 total).

B Robustness

The following tables display results from several robustness tests. Our main estimates focused on a balanced panel, including only those properties with data available for each year. A potential concern with this approach is that is obscures the potential effects of differential exit and entry. For example, the balanced panel could introduce a survivor bias whereby firms with less favorable profit outcomes are excluded from the analysis. In Table A5, we estimate the main set of specifications on the full unbalanced panel, and we find similar results to our baseline estimates.

Because of the unusual nature of the pandemic-era downturn, we restrict our attention to data from 2019 and earlier in our baseline specification. But our full dataset contains observations through 2023. In Table A6, we investigate whether the findings differ if we include the more recent years of data. Specifically, we re-estimate our main profit and profit share specifications for four different sample periods: 2010-2019; 2010-2023; 2010-2023, excluding 2020; and 2010-2023, excluding both 2020 and 2021. The table shows that expanding the sample through 2023 gives similar results, whether or not we exclude 2020 and 2021.

Finally, we look for evidence of reverse causality, which represents a potential threat to the validity of our interpretation. For example, suppose a positive shock to demand causes hotels to hire additional workers, and this hiring causes a decline in the local unemployment rate. This sort of effect would contribute an upward bias in the magnitude of our estimates, leading us to overstate the effect of unemployment on revenue and profit. We might expect this channel to be stronger in places where the hotel sector makes up a larger share of overall employment; those are the places where shocks to hotel financial performance would be most likely to affect aggregate labor market indicators. In Table A7, we restrict our analysis to MSAs where the hotel sector represents only a small share of overall employment. Specifically, we rank MSAs according to the share of overall employment in Accommodation and Food Services (NAICS sector 72), and we drop the 25% of MSAs with the highest shares.

If anything, the results in Table A7 show larger effects on profit and revenue compared to our baseline sample, indicating that reverse causality is unlikely to be driving the effects we describe in this paper.

Table A5: Robustness: Unbalanced panel

	(1) Log QWI Earnings	(2) Log Labor PAR	(3) Log GOPPAR	(4) Log TRevPAR	(5) Log Non-Labor PAR	(6) Labor Share	(7) GOP Share	(8) Log RevPAR	(9) Log ADR	(10) Log Occupancy
2-3%	0.0331***	0.0659***	0.264***	0.150***	0.0807***	-0.0202***	0.0419***	0.156***	0.135***	0.0219*
	(0.00844)	(0.0153)	(0.0601)	(0.0324)	(0.0210)	(0.00523)	(0.00927)	(0.0340)	(0.0299)	(0.0125)
3-4	0.0107**	0.0332***	0.166***	0.0935***	0.0494***	-0.0139***	0.0272***	0.0972***	0.0705***	0.0268***
	(0.00545)	(0.00870)	(0.0359)	(0.0192)	(0.0127)	(0.00337)	(0.00577)	(0.0200)	(0.0161)	(0.00871)
4-5	0.000865	0.0148***	0.0811***	0.0458***	0.0254***	-0.00691***	0.0133***	0.0474***	0.0316***	0.0159***
	(0.00306)	(0.00404)	(0.0174)	(0.00937)	(0.00609)	(0.00178)	(0.00292)	(0.00976)	(0.00746)	(0.00453)
5-6	ref.	ref.	ref.	ref.	ref.	ref.	ref.	ref.	ref.	ref.
6-7	0.000483	-0.00902**	-0.0563***	-0.0322***	-0.0168**	0.00568**	-0.0109***	-0.0338***	-0.0259***	-0.00758
	(0.00285)	(0.00403)	(0.0215)	(0.0110)	(0.00667)	(0.00238)	(0.00386)	(0.0114)	(0.00789)	(0.00595)
7-8	0.00246	-0.0159**	-0.143***	-0.0759***	-0.0419***	0.0146***	-0.0255***	-0.0792***	-0.0571***	-0.0220***
	(0.00433)	(0.00705)	(0.0304)	(0.0159)	(0.0101)	(0.00301)	(0.00518)	(0.0163)	(0.0139)	(0.00742)
≥8	-0.00138	-0.0351***	-0.258***	-0.137***	-0.0745***	0.0242***	-0.0441***	-0.140***	-0.0950***	-0.0446***
	(0.00608)	(0.0119)	(0.0542)	(0.0288)	(0.0187)	(0.00558)	(0.00898)	(0.0296)	(0.0241)	(0.0112)
Obs.	3070	51245	50977	51248	51245	51245	51248	51248	51244	51244
Properties		7902	7868	7902	7902	7902	7902	7902	7902	7902
MSAs	339	344	344	344	344	344	344	344	344	344
R^2	0.974	0.989	0.887	0.975	0.983	0.899	0.875	0.964	0.981	0.765

Notes: The table shows results for the same specifications from Table 1 after relaxing the balanced panel restriction; the unbalanced panel used in this table includes all available properties for the years 2010-2019. Column 1 is an MSA-level regression; remaining columns are firm-level regressions. Standard errors adjusted for clustering at the MSA level. * p < 0.10, ** p < 0.05, *** p < 0.01.

Table A6: Robustness: Alternative sample periods

	Log GOPPAR				GOP Share			
	(1) 2010-2019	(2) 2010-2023	(3) Exclude 2020	(4) Exclude 2020-21	(5) 2010-2019	(6) 2010-2023	(7) Exclude 2020	(8) Exclude 2020-21
2-3%	0.264***	0.298***	0.262***	0.258***	0.0419***	0.0547***	0.0452***	0.0443***
	(0.0601)	(0.0633)	(0.0661)	(0.0612)	(0.00927)	(0.0107)	(0.0108)	(0.00951)
3-4	0.166***	0.191***	0.170***	0.177***	0.0272***	0.0339***	0.0282***	0.0295***
	(0.0359)	(0.0388)	(0.0397)	(0.0359)	(0.00577)	(0.00702)	(0.00684)	(0.00579)
4-5	0.0811***	0.0639**	0.0563*	0.0756***	0.0133***	0.0129**	0.00996*	0.0128***
	(0.0174)	(0.0282)	(0.0297)	(0.0204)	(0.00292)	(0.00500)	(0.00536)	(0.00338)
5-6	ref.	ref.	ref.	ref.	ref.	ref.	ref.	ref.
6-7	-0.0563***	-0.0916***	-0.0655***	-0.0640***	-0.0109***	-0.0168***	-0.0106**	-0.0120***
	(0.0215)	(0.0216)	(0.0251)	(0.0224)	(0.00386)	(0.00378)	(0.00438)	(0.00411)
7-8	-0.143***	-0.146***	-0.160***	-0.157***	-0.0255***	-0.0230***	-0.0264***	-0.0275***
	(0.0304)	(0.0336)	(0.0379)	(0.0323)	(0.00518)	(0.00567)	(0.00618)	(0.00554)
≥8	-0.258***	-0.274***	-0.272***	-0.279***	-0.0441***	-0.0541***	-0.0446***	-0.0473***
	(0.0542)	(0.0388)	(0.0500)	(0.0558)	(0.00898)	(0.00757)	(0.00885)	(0.00927)
Obs.	50977	72177	67578	62024	51248	73788	68155	62417
Properties	7868	9135	9063	8921	7902	9203	9115	8971
MSAs	344	349	349	347	344	349	349	347
R^2	0.887	0.785	0.811	0.851	0.875	0.779	0.804	0.836

Notes: Firm-level regressions using alternative sample period restrictions. All specifications are unbalanced panels using all available observations for the indicated years. Columns 2 and 6 use all available observations between 2010-2023; columns 3 and 7 include observations from 2010-2019 and 2021-2023, dropping 2020 only; columns 4 and 8 include 2010-2019 and 2022-2023, dropping 2020 and 2021. All specifications include firm and segment-by-year fixed effects. Standard errors adjusted for clustering at the MSA level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A7: Robustness: Drop MSAs with high share of employment in hospitality

	(1) Log QWI Earnings	(2) Log Labor PAR	(3) Log GOPPAR	(4) Log TRevPAR	(5) Log Non-Labor PAR	(6) Labor Share	(7) GOP Share	(8) Log RevPAR	(9) Log ADR	(10) Log Occupancy
2-3%	0.0431***	0.0802***	0.326***	0.193***	0.107***	-0.0254***	0.0500***	0.196***	0.169***	0.0263
	(0.0102)	(0.0191)	(0.0827)	(0.0452)	(0.0304)	(0.00745)	(0.0137)	(0.0468)	(0.0418)	(0.0177)
3-4	0.0121*	0.0321***	0.197***	0.115***	0.0611***	-0.0178***	0.0325***	0.118***	0.0818***	0.0367***
	(0.00665)	(0.0108)	(0.0493)	(0.0276)	(0.0189)	(0.00480)	(0.00845)	(0.0284)	(0.0235)	(0.0133)
4-5	0.00108	0.0156***	0.0999***	0.0570***	0.0308***	-0.00879***	0.0165***	0.0582***	0.0393***	0.0190***
	(0.00389)	(0.00465)	(0.0232)	(0.0130)	(0.00930)	(0.00246)	(0.00415)	(0.0133)	(0.0103)	(0.00683)
5-6	ref.	ref.	ref.	ref.	ref.	ref.	ref.	ref.	ref.	ref.
6-7	0.000381	-0.0117**	-0.0627**	-0.0371**	-0.0170*	0.00596*	-0.0118**	-0.0367**	-0.0277**	-0.00881
	(0.00347)	(0.00470)	(0.0317)	(0.0166)	(0.00989)	(0.00345)	(0.00592)	(0.0173)	(0.0116)	(0.00981)
7-8	0.00305	-0.0182**	-0.159***	-0.0862***	-0.0382***	0.0158***	-0.0292***	-0.0885***	-0.0598***	-0.0285**
	(0.00532)	(0.00893)	(0.0395)	(0.0221)	(0.0143)	(0.00406)	(0.00748)	(0.0228)	(0.0211)	(0.0111)
≥8	0.00244	-0.0353***	-0.281***	-0.158***	-0.0772***	0.0272***	-0.0497***	-0.160***	-0.106***	-0.0536***
	(0.00750)	(0.0133)	(0.0650)	(0.0371)	(0.0240)	(0.00687)	(0.0114)	(0.0385)	(0.0343)	(0.0151)
Obs.	1712	14893	14877	14894	14893	14893	14894	14894	14893	14893
Properties		1490	1490	1490	1490	1490	1490	1490	1490	1490
MSAs	172	172	172	172	172	172	172	172	172	172
R^2	0.975	0.992	0.887	0.978	0.987	0.896	0.877	0.967	0.982	0.677

Notes: The table shows results for the same specifications from Table 1 after dropping the top 25% of MSAs with the highest proportion of employment in the Accommodation and Food Services sector (NAICS 72). Column 1 is an MSA-level regression; remaining columns are firm-level regressions. Standard errors adjusted for clustering at the MSA level. * p < 0.10, ** p < 0.05, *** p < 0.01.