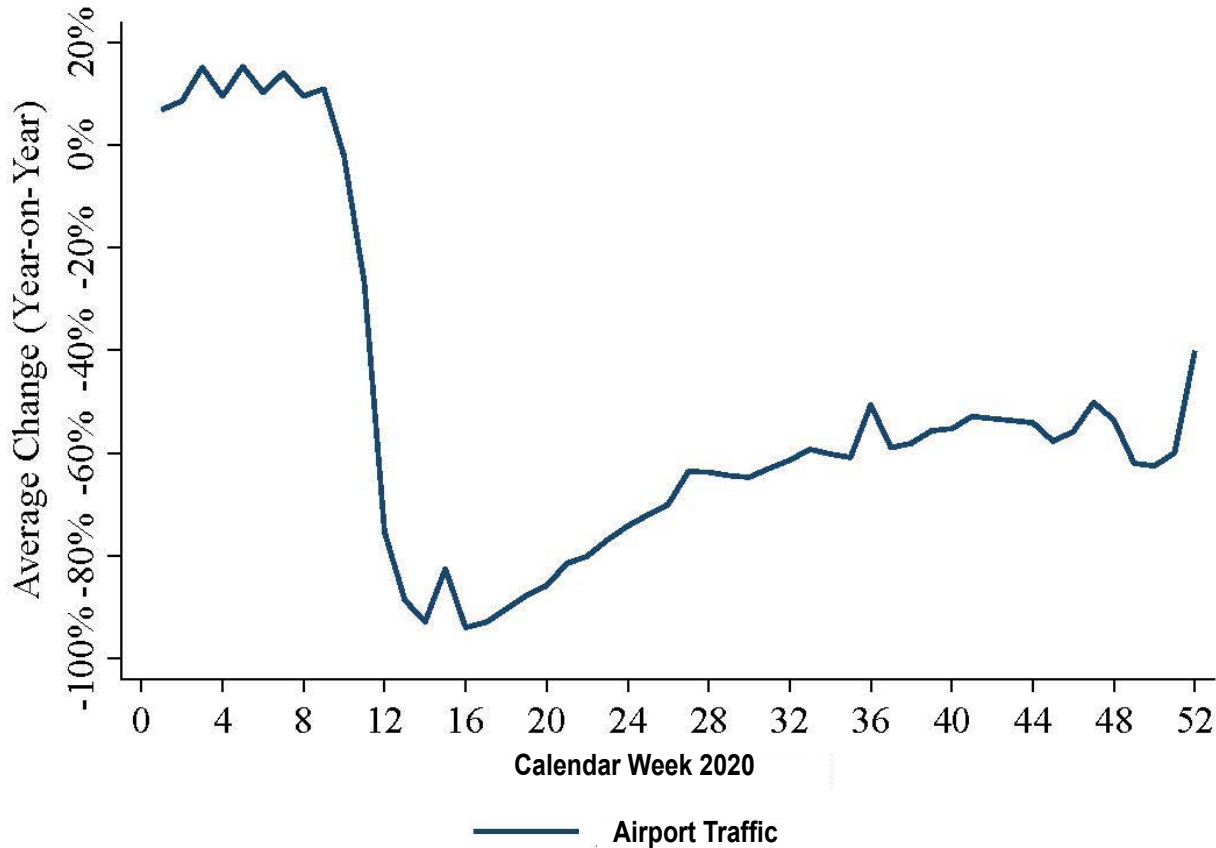


Distortionary Effects of PPP Loans on Business Competition: Evidence from the Hotel Industry

by Eva Steiner and Alexei Tchistyj

The Covid-19 pandemic that emerged in 2020 caused a deep, global economic crisis that was especially difficult for the hotel industry. The U.S. government responded to this crisis with an emergency set of economic relief measures on a near-unprecedented scale. The Small Business Administration’s \$953-billion Payroll Protection Program (PPP) was a key part of that response. In an effort to reduce layoffs, the PPP offered temporary payroll subsidies in the form of forgivable loans for small businesses. Given the significant cost involved, it is important to evaluate the economic impact of the PPP initiative. While the program was clearly beneficial for businesses that received PPP funds, we found a potential unintended consequence of the PPP—namely, the distortion of business competition. Our study assesses how equilibrium market outcomes change when firms benefiting from government subsidies compete against non-subsidized firms.

Airport traffic during Covid pandemic



In our paper, we incorporate temporary cash subsidies into a model of monopolistic competition with differentiated products. We test the predictions of our model in a sample of U.S. airport hotels for which we observe daily demand, prices, output, and profits. We are grateful to Stephen Hood, Duane Vinson, and STR for sharing their high-quality data on the performance of airport hotels near 78 major airports, accounting for 85 percent of all commercial enplanements in the U.S. in 2019.

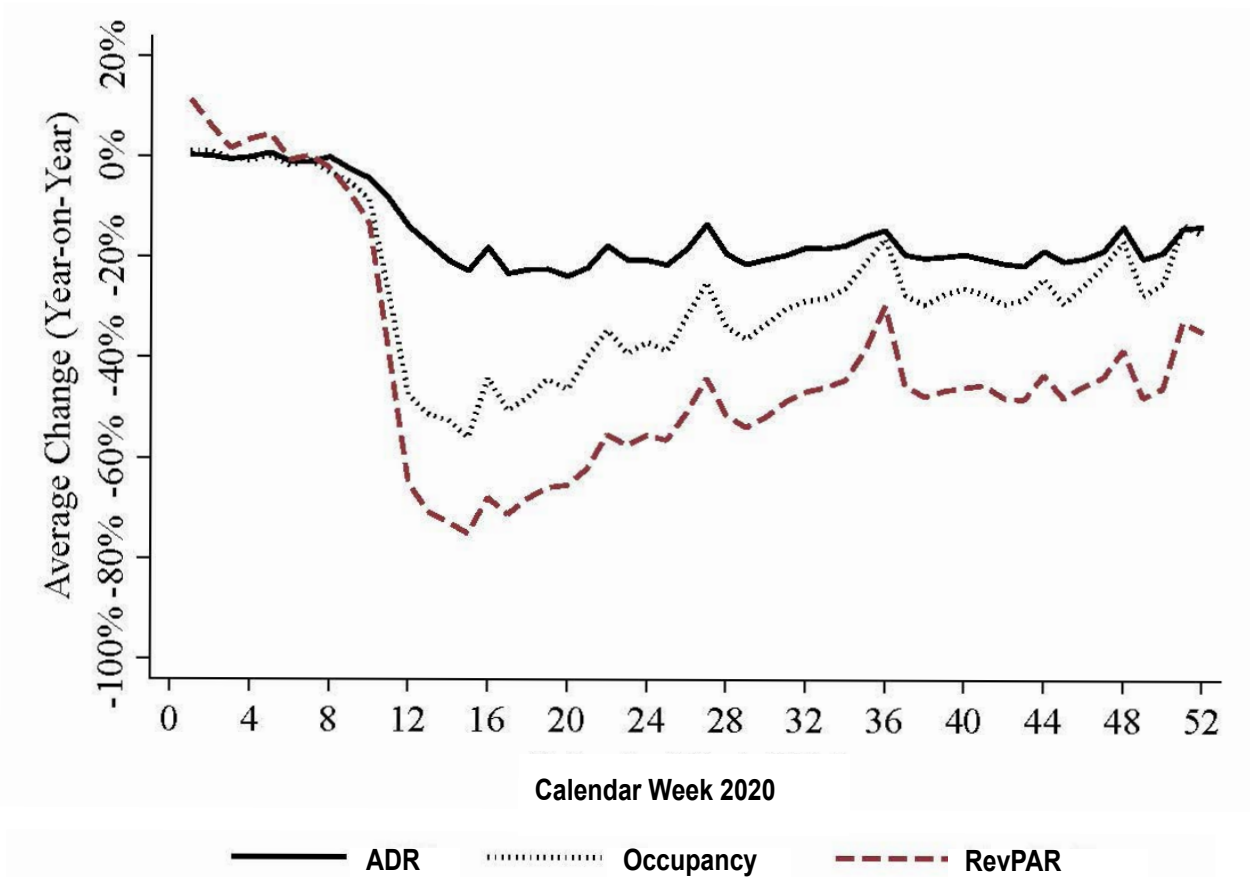
Airport hotels are particularly suitable for our analyses. For one, we can observe the final key variable required to study product market competition, namely, daily demand (proxied by airport passenger volumes, as shown in Exhibit 1). Unlike other types of hotels, such as vacation resorts or conference hotels, airport hotels typically focus on offering basic accommodation

services. Thus, they do not require complex production technologies, and have relatively simple cost structures that align well with our model setup.

Hotels Were at the Heart of PPP

As shown in Exhibit 2, the hotel industry was hit hard by the Covid-19 pandemic, particularly due to a dramatic reduction in travel. As a result, hotels were at the heart of the government's efforts to provide financial support to affected businesses. Importantly, the hotel industry was exempted from the size thresholds for PPP loan eligibility, but we found that relatively few of the hotels we studied took advantage of this opportunity. Out of the 1,945 airport hotels in our sample, only 311 (16%) obtained a PPP loan in 2020. The take-up rate of PPP loans among the airport hotels in our sample was thus lower than it was in other sectors of the economy.

Hotel performance during Covid pandemic



While hotels in our sample fell squarely into the PPP eligibility criteria, their owners drew sharp criticism for accepting PPP funds. Indeed, many returned those funds despite being in full compliance with PPP eligibility rules. Thus we see that the perceived costs of obtaining PPP funds, such as potential reputational damage, the risk of future government audits, and the fear of tighter regulations, were likely particularly acute in the hotel sector.

Consistent with the central predictions of our model, we find that underperforming hotels, that is, hotels with higher production costs (proxied by lower pre-pandemic profitability and, alternatively, older age) and those that experienced larger negative demand shocks in their local airport markets, were significantly more likely to apply for PPP loans. We further docu-

ment that hotels operating in more competitive markets were also more likely to apply for PPP loans.

PPP Permitted Rate Reductions

Our analyses of hotels' competitive strategies during the pandemic shows that hotels with active PPP loans reduced their average daily rates (ADR) compared to their rivals without PPP loans. As a result, PPP hotels experienced higher occupancy rates and revenues per available room (RevPAR) than their rivals. We also show that hotels reversed those strategies after their PPP loans expired. More specifically, after receiving PPP loans, hotels reduced their ADR by 2.2 percent and achieved 21.4-percent higher occupancy relative to non-PPP hotels in the same class bucket and airport market. After their PPP loans expired, however,

PPP hotels increased their ADR by 1.9 percent, which resulted in a decline in occupancy of 7.6 percent relative to their competitors that never accepted PPP loans. Those findings are consistent with the central hypotheses derived from our model.

In the final step of our study, we quantify the relative costs and benefits resulting from the PPP in terms of firm profits. We do this by combining the insights from our theoretical model with the estimates derived from our empirical analyses of airport hotels. For this analysis, we compare profits of hotels with PPP loans against the counterfactual profits those hotels would have earned in the absence of PPP loans. On this basis, we calculate that every dollar spent by the government on the PPP led to 72.4 cents in extra profits for airport hotels that obtained PPP loans. At the same time, every dollar spent on PPP loans cost airport hotels that chose to forgo those loans 71.4 cents in lost profits.

Consumers Benefit from Rate Reductions

Those results imply that the net benefits of the PPP for the airport hotel industry total 1 cent per dollar spent on the program. The remaining 99 cents of the surplus accrued to consumers, who benefited from price declines made possible by PPP subsidies. On balance, we calculate that for every dollar of profits earned by a given hotel with a PPP loan, the losses in profits earned by a given competitor without a PPP loan amount to 18.8 cents. The numerically strong effects of PPP loans on equilibrium market outcomes in the airport hotel industry are consistent with that industry being highly competitive, where prices can be easily compared and adjusted on a daily basis.

Overall, our findings show that PPP loans substantially distorted business competition. In the data, we document that hotels with active PPP loans reduced average daily rates, boosting occupancy and RevPAR compared to competitors without PPP loans. Those differences were reversed once PPP loans expired. Aside from hotel employees, consumers were among the biggest beneficiaries of PPP subsidies allocated to the airport hotel industry. The primary effect of the PPP on the airport hotel industry itself, in addition to preserving employment, was to transfer profits from the hotels without PPP loans to the hotels with PPP loans by distorting market competition.

An important implication of our study for policymakers contemplating subsidies and other forms of support to underperforming businesses is that those measures can have unintended negative effects on healthy businesses competing against the beneficiaries of government support. ■

The net benefits of the PPP for the airport hotel industry total 1 cent per dollar spent on the program.

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