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ABSTRACT

The Economic Footprint of Short-Term Rentals on Local Businesses: Evidence from Portugal*

We analyze how the proliferation of short-term rentals (STRs) affects firm survival, performance, and entry in two European cities with high STR density. Using administrative firm-level accounting data, a shift-share instrument, and an event-study design, we find that STR growth increases exit rates among underperforming firms, while surviving firms experience relative gains in sales and profits, with minimal effects on employment or investment. Operational costs, particularly rents and liabilities, also rise. STR expansion stimulates entrepreneurship, though new entrants face higher costs and lower initial profitability. These findings underscore the nuanced impacts of tourism-driven demand shocks on urban economic ecosystems.

JEL Classification: R12, L25, L83

Keywords: short-term rentals, local businesses, tourism, Portugal

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1 Introduction

The role of short-term rental (STR) accommodations, such as Airbnb, in shaping the local economic environment has been the subject of extensive debate over the past decade and a half. Their perceived negative consequences, including rising housing prices (Garcia-López et al., 2020; Barron et al., 2021; Franco and Santos, 2021; Congiu et al., 2025), with unequal effects on the welfare of residents (Calder-Wang, 2021; Almagro and Domínguez-Iino, 2025), have raised concerns among local communities. As a result, several jurisdictions around the world have implemented regulations to limit the expansion of these venues (Koster et al., 2021; Valentin, 2021; Duso et al., 2024).

While substantial efforts have been made to examine the effects on the real estate market, the rapid growth of peer-to-peer accommodation platforms and the resulting influx of tourists with diverse (and often wealthier) consumption patterns require a thorough examination of their impact on local business performance. On the one hand, the presence of STRs may expand lodging capacity, allowing more visitors, and leading to increased demand for local amenities, thereby supporting businesses and boosting income for property owners, workers, and local tax revenues. On the other hand, there are several challenges associated with being located in a thriving touristic area, including heightened competition and rising rental costs. Moreover, as foot traffic, consumer demographics, or land use change, the effects may vary across sectors. For instance, Airbnb can stimulate the demand for services such as restaurants and retail stores, while potentially undermining traditional competitors like hotels (Zervas et al., 2017; Li and Srinivasan, 2019; Farronato and Fradkin, 2022).

Although there are some important contributions analyzing the impact of STRs on the number and the sectoral distribution of firms (Xu and Xu, 2021; Hidalgo et al., 2023, 2024), shedding light on the underlying mechanisms requires access to administrative, geolocated, panel firm-level accounting data. That is precisely what we do in the context of Portugal – one of the OECD countries where the housing affordability crisis has been more pronounced (Azevedo et al., 2025) and which has experienced a dramatic surge in STR accommodations over the last decade. According to Statistics Portugal, in Lisbon and Porto, the two largest urban centers in the country, about 11% and 12% of the housing stock, respectively, were allocated to STRs before 2020. These figures notably exceeded those of other European cities, such as Paris (4.6%), Madrid (3%), or Barcelona (9.3%) (United Nations Economic Commission for Europe, 2022). Therefore, the Portuguese experience offers valuable insights into the broader economic impacts of STRs.

This paper aims to answer a central question: How does the expansion of STR platforms affect local business dynamics in urban economies? More specifically, we structure our analysis into three parts. First, using firm-level data, we examine the impact of the expansion of STRs on market exit among incumbent firms. Second, we assess the effects of STR growth on firm-level outcomes, including sales, profits, investment, and labor market dynamics. Subsequently, we investigate whether firms adjusted their cost structures (including rental payments) and debt levels in response. Third, we evaluate the influence of STR proliferation on the local emergence of start-ups and analyze whether these new entrants exhibit distinct characteristics compared to

existing firms.

We leverage high-resolution spatial variation of the intensity of STRs, at the civil parish level and within the municipalities of Lisbon and Porto. Our treatment measure allows us to determine the intensity in which areas were more or less exposed to Airbnb. In our baseline specification, we regress the treatment variable on the evolution of specific outcomes for the period 2008-2019, while controlling for firm- and municipality-year fixed effects. To mitigate endogeneity concerns, we propose two approaches. First, we predict the location of the STRs using a shift-share instrument (Borusyak et al., 2025). As in Garcia-López et al. (2020), the instrument weights the distance to the main tourist attractions with the number of reviews on a popular website, based on the empirical regularity with which STRs tend to locate near landmarks. Second, we empirically investigate for pre-trends in a difference-in-differences event study framework (Roth et al., 2023), an important check as argued by Goldsmith-Pinkham et al. (2020).

Our results can be summarized as follows. Regarding market exit, we find that firms located in civil parishes more affected by the proliferation of Airbnbs are more likely to leave the market. In addition, we show that these exits are especially pronounced among firms that were already underperforming in the pre-shock period, suggesting a cleasing effect mechanism (Caballero and Hammour, 1994; Basker and Miranda, 2018; Cole et al., 2019).

We then zoom in on the effects of STRs on the performance of incumbent firms that survive. We show that these firms in more affected areas sell more, and consequently have higher profits and pay more taxes. However, we do not observe overall employment or wage effects or in investment, with the exception of the restaurant industry. Furthermore, while we do not discern significant effects on total expenses, with sectoral heterogeneity, we find that rental payments increased substantially over the period. There is also empirical evidence pointing towards increases in both short- and long-run liabilities for firms in civil parishes that witnessed a more rapid STR expansion.

Lastly, and with respect to the effects on the number and the type of firms that enter in these markets, we document a significant increase in local competition. We also show that start-ups in more affected areas are, on average, different from those in less affected areas: they hire more workers and have less profits in the first year. As a consequence, they start with more expenses, including rental payments, and have higher levels of short-run liabilities, suggesting that STR exposure may reinforce the competitive advantage of surviving incumbents rather than leveling the playing field for new entrants.

Our paper contributes to several strands of the literature. First, and unlike most existing research that has addressed how local labor markets respond to shocks in the manufacturing, energy, and mining sectors (Greenstone et al., 2010; Autor et al., 2013; Aragón and Rud, 2016; Helm, 2019; Giroud et al., 2024), we focus on the economic impact of tourism, an important service sector that has been largely overlooked in previous research. Some of the most important exceptions are González and Surovtseva (2025), who found that, in Spanish regions, a one standard deviation increase in tourist inflow leads to a 1-percentage point increase in employment in the tourism industry and in other services, without visible spillover effects to other sectors of the economy;

Faber and Gaubert (2019) who conclude, with municipality-level data from Mexico, that areas that attract more tourists experience significant positive effects on total employment, population, local GDP, and wages, with the largest spillover occurring in the manufacturing sector; Nocito et al. (2023) show how the entertainment media successfully attracted tourists to four municipalities in Italy, which in turn led to an increase in municipal income. Our paper adds to this body of work by taking advantage of a detailed administrative dataset at the firm-level and by analyzing a wide range of performance and financial outcomes.

Second, studies that have examined how Airbnb and related platforms shape the business environment are rare and have focused mainly on its role in driving demand for local leisure amenities. Hidalgo et al. (2024), in Madrid, concluded that an increase in ten Airbnb rooms in a census tract led to one more restaurant and in Xu and Xu (2021), who estimated that, in Chicago, Airbnb propelled an increase in liquor, retail food, and entertainment business licenses. Moreover, Hidalgo et al. (2023), using establishment-level data for Madrid, and focusing on establishment dynamic in October 2014 and October 2019, show that Airbnb displaces resident-oriented businesses, reshaping the urban space according to tourists' needs. However, these papers have not explored how STR affects the survival, performance, investment decisions, and cost structure of local businesses and whether it changes the dynamics of firm entry.

Lastly, previous research has extensively examined the impact of STRs on the welfare of residents and housing owners (including absentee landlords) highlighting substantial effects on housing affordability and inequality (Calder-Wang, 2021; Almagro and Domínguez-Iino, 2025). We complement this literature by showing that property owners of surviving businesses also benefit from the increased demand generated by STRs, despite facing heightened competition and rising operational costs. Furthermore, we look into specific sectors such as restaurants and food retailers, which not only play a central role in the local economy but also function as key urban amenities that shape residential desirability and consumer welfare (Schiff, 2015; Glaeser et al., 2018; Davis et al., 2019; Eizenberg et al., 2021; Su, 2022; Ghorbani and Meltzer, 2024; Avetian and Pauly, 2025; Cook, 2025).

The remainder of this paper proceeds as follows. In Section 2, we provide more details on the institutional context. In Section 3, we present the data that we use in this article, while in Section 4 we explain the empirical strategies. In Section 5, we discuss the main results that examine effects on firm exit, on the performance of incumbent firms, and consider the challenges associated with entry. Finally, Section 6 concludes.

2 Institutional Background

Over the last decade, Portugal experienced a significant rise in the levels of tourism. Between 2010-2019, tourism exports, as percentage of GDP, more than doubled, rising from 4.2% to 8.5 According to Statistics Portugal, the share of foreign guests in tourist accommodations increased from 50.5% to 60.5%, over the same time period, for the entire country, while incrementing from

56.6% to 79.1%, for the municipality of Porto, and from 67.5% to 79.9% in Lisbon.

The rise in tourism was, to a certain extent, propelled by the development of STRs, such as Airbnb, which in 2019 represented 8.8% of the total revenue from tourist accommodations, according to Statistics Portugal. Nobre et al. (2023) provide a detailed description of the institutional context behind the surge in the number of short-term rentals, known in Portuguese as *Local Lodgings*. Despite the concept of tourist apartments being first introduced in 2008 (Carvalho and Policarpo, 2018), with the Decree-Law no. 39/2008[1], which set the regulations for the functioning of tourist establishments, requiring the formal creation of an enterprise, it was not only until 2014 that a legislative procedure (Decree-Law 128/2014)[2] created a framework for the operation of short-term rentals. The 2014 legislative procedure intended to allow temporary accommodation services to take place in establishments that did not meet the legal requirements to be considered tourist enterprises. Among other aspects, the reform was also responsible for originating a simpler online process for landlords to register their accommodations at the National Short-Term Rental Registry (RNAL), free of charge. Another key feature was the integration of such accommodation activities in the national tax system, thus successfully regulating this sector.

The surge in tourism activities and in the number of short-term rentals posed great challenges to local and national governments due its perceived role in increasing property prices, reducing supply and displacing residents (Nobre et al., 2023). On the supply side, the lack of available construction land and regulatory constraints are also contributing to house price appreciation (Azevedo et al., 2025). As a result, Lisbon introduced a ban on short-term rentals in areas where it represented more than 25% of housing stock (Peralta et al., 2022), while Porto introduced "containment areas" in 2023, following similar patterns to other European and US cities (Koster et al., 2021; Valentin, 2021; Duso et al., 2024).

We display the variation in the number of short-term rentals opening per year, between 2010 and 2019, for Lisbon and Porto, in Figure 1. The evolution of new short-term rentals during this period was strongly influenced by policy interventions. The 2014 reform, which simplified the registration process for owners who wish to offer short-term accommodations, triggered an exponential increase in the number of local lodgings that open each year. This growth halted in 2018, when Lisbon imposed a ban on new short-term rentals, leading to a sharp decline in the number of new accommodation venues between 2018 and 2019. Moreover, the figure also displays the registry rate—defined as the share of short-term rental stock relative to total dwelling stock—in the civil parishes of Lisbon and Porto in 2016, a year that already saw a substantial number of new STR openings. This comparison highlights the heterogeneous exposure of different areas to temporary accommodation services: parishes shaded in dark blue represent those with the highest STR concentration. In Lisbon, in particular, some parishes were highly affected, while others remained largely untouched. This variation in treatment intensity forms the basis of our identification strategy, as detailed in the following sections.

[1] https://diariodarepublica.pt/dr/en/detail/decree-law/39-2008-247248

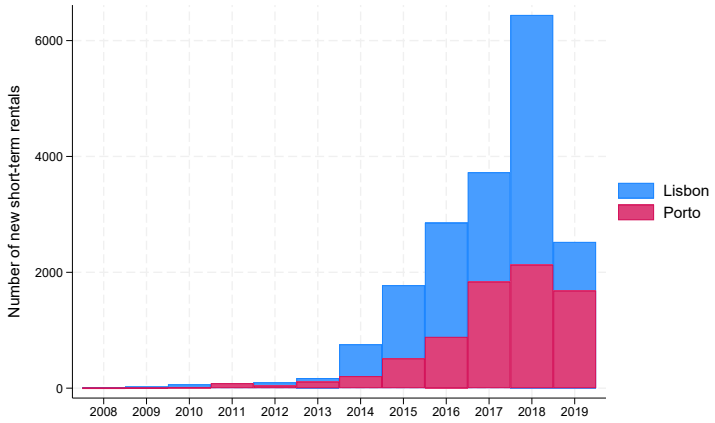
[2] http://business.turismodeportugal.pt/SiteCollectionDocuments/alojamento-local/Dec-Lei-128-2014-ENG-nov-2017.pdf

The growing importance of tourism activities, the different legislative policies and the intense debate it has sparked in the media and among political agents, led to a considerable number of research studies that have attempted to shed light on the social ramifications of short-term rentals, and tourism more broadly, in Portugal. The effect on house prices has been well documented through several studies. Franco and Santos (2021) using average transactions prices found that a 1pp increase in Airbnb, in a civil parish in Lisbon and Porto, leads to a 3.2% increment in house prices. Nobre et al. (2023) with transaction data for the Metropolitan Areas of Lisbon and Porto estimated that a ten-unit increase in the number of local lodging establishments led to an increase between 1.4%-2.7% in house prices per quarter and civil parish. Peralta et al. (2022) examined the effect of the ban on short-term rentals that took place in some areas of Lisbon, concluding that it led to a 9% decrease in affected areas, while also noticing a rapid expansion in the number of local lodging registries between the announcement and implementation of the restriction.

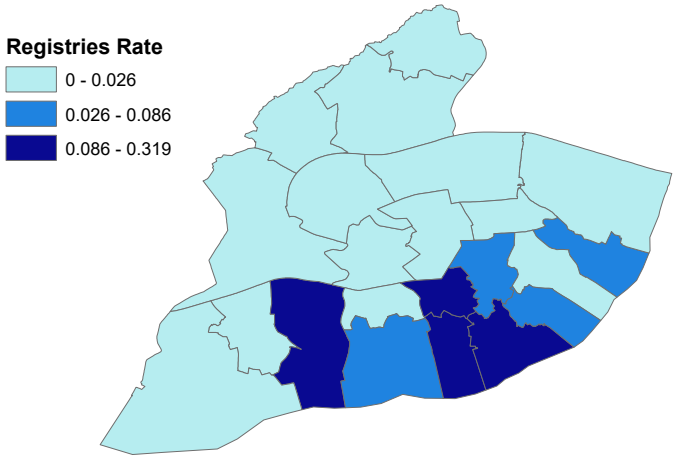
From the urban geography literature, Cocola-Gant and Gago (2021) documented, through field work, that the expansion of Airbnb in Lisbon was responsible for a buy-to-let gentrification process, where investors buy properties to then transform in short-term rentals and use it as a source of revenue. This process led to a profound transformation of certain areas of Lisbon, where working-class residents are replaced by tourists and housing supply shrinks. The authors also argued that the state played an important role in encouraging tourism activities and real estate investment.

We add to the literature on the impact of short-term rentals in Portugal by performing a comprehensive analysis of its effects on the business environment. We measure the level of exposure to short-term registries in each civil parish of the municipalities of Lisbon and Porto and then assess how it relates to the probability of firm closure, how it affects certain business performance indicators, and how it shapes the conditions for entry firms.

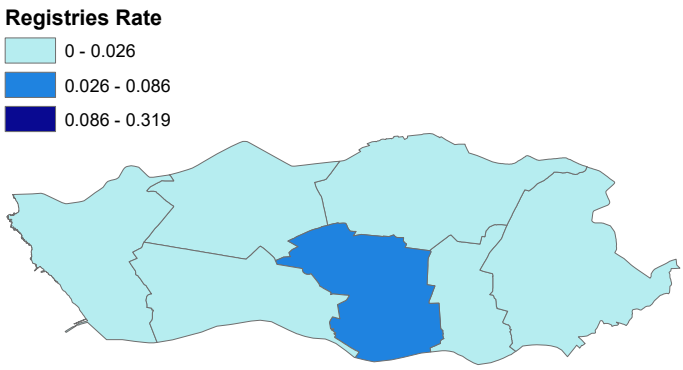
Figure 1: Short-term rentals in Portugal



(a) New short-term rentals per year



(b) Treatment intensity - Municipality of Lisbon - 2016



(c) Treatment intensity - Municipality of Porto - 2016

3 Data

To estimate the causal effects of geographical exposure to short-term rentals on businesses, we construct a novel dataset that combines firm-level data for the period 2008-2019, made available to researchers by the Bank of Portugal, with the national STR registry. We focus our analysis on the municipalities of Lisbon and Porto, the two most affected cities in the country, and the capitals of the two metropolitan areas of Portugal, as discussed in Section 2. In total, we have 29 civil parishes, 22 in Lisbon and 7 in Porto, ranging in population density from 3,689.80 to 15,634.74 people per square kilometer, and in size from 1.49 to 10.43 square kilometers.[3]

3.1 Data sources

The data for the short-term rental registries come from the National Short-Term Rental Registry (RNAL) and can be accessed at Turismo de Portugal.[4] This source contains information on the host, address, civil parish where it is located, and date of opening to the public. For a property to be advertised on homesharing platforms in Portugal, such as Airbnb and Booking, the host is legally required to be registered in RNAL. Hence, the data from the national registry provides a very complete indication of short-term rental activity.[5] Furthermore, this dataset includes the exact date each local lodging started to operate, while sources like Inside Airbnb only provide data on the accommodation services still in activity.

The firm-level data comes from the Central Balance Sheet Harmonized Panel Data, an annual administrative dataset containing economic and financial information on all Portuguese non-financial corporations as well as a unique firm identifier. The data is collected from *IES-Informação Estatística Simplificada*, a form that all companies are required to fill annually for tax purposes, and provided to us by the Bank of Portugal Microdata Research Laboratory. We exclude state-owned companies, public sector administration, and multi-establishment firms, as for the latter the information is only reported at the headquarters level, making it impossible to know the performance of each individual establishment.[6] In order to explore the heterogeneity of the effects by type of firm and their function, we zoom in on different sectors such as restaurants (which include bars, coffee shops, and bakeries), hotels, and food retailers, which we believe can be seen as either complementary or substitute to the services provided by homesharing platforms.

3.2 Outcome variables

We separate our analysis into three parts: *Market Exit*, *Performance of Incumbent Firms*, and *Challenges of entering*. For the first two, we define as incumbent firms the 26,025 unique firms that

[3] We exclude from our analysis the civil parishes of Olivais and Parque das Nações in Lisbon, as they were subject to an administrative reform that does not allow us to retrieve their socioeconomic information.

[4] https://dadosabertos.turismodeportugal.pt/

[5] Nevertheless, we point out that our results remain very similar if we rely on an alternative measure, as explained in Section 4 and presented in the robustness discussions in Section 5.

[6] Single establishment firms represent 95% of our sample.

exist in Lisbon and Porto in 2013, the last pre-shock year. Our datasets allow us to follow them before (possibly since 2008) and after (possibly until 2019) the shock. Thus, we avoid possible confounding effects from firms that exited before the consistent establishment of short-term rental platforms in Portugal. In the last part, we follow all new firms in both municipalities for the period 2008 to 2019.

Market Exit. We use a dummy variable that takes the value 1 if the firm exits the dataset and zero otherwise. Taking into account our sample definition, this means that before 2013 we consider whether a firm is already present in the dataset, while after that year we measure the probability of a firm exiting the market.

Performance of Incumbent Firms. We start by studying the effect on a series of firm performance indicators, including sales and earnings before taxes (EBT). This last indicator captures a firm's operational and financial results prior to the influence of tax policies, allowing for a clearer comparison across businesses and providing insights into managerial efficiency. Next, we consider two employment indicators: the number of full-time equivalent paid employees and average wages.[7] In addition, we look at the value of tangible assets to explore whether it led to increases in investment levels. We also examine the effect on the sum of the value added and the corporate income taxes paid to the State.

The rise in short-term rentals could also have created new challenges for incumbent firms. We investigate this possibility by considering both total expenses, and expense levels disaggregated in a few items, including the wage bill, production costs (computed as the sum of costs of goods sold and material consumed with supplies of external services), and on rents. Finally, we disentangle effects on short- and long-run liabilities.

Apart from EBT and wages per worker, all variables are subject to a logarithm transformation. With respect to EBT, we use the inverse hyperbolic sine transformation, which allows to use negative and zero valued observations (Bellemare and Wichman, 2020; Aihounton and Henningsen, 2021). In order to deal with outliers, we winsorize above the 1st and 99th percentile, meaning that the more extreme values on the bottom and top of our distribution are replaced by the values in the 1st and 99th percentile, respectively.

Challenges of entering. We first aggregate the number of new firms at the civil parish level to shed light on the reaction of local competition to Airbnb and other online platforms. Then, again at the firm-level, we explore the conditions of firm entering. Hence, as outcome variables, we use the same variables as when assessing the impact on firm's performance, but only considering the first year that the firm is in the sample. This exercise allows us to discern whether exposure to short-term rentals leads start-ups to enter the market with different levels of performance and costs. In Table A1 we present a set of descriptive statistics for our outcome variables, both at the firm (Panel A) and civil parish (Panel B), for 2013 (the pre-shock year) and 2019 (the last year in our sample. Overall, the average value of firm-level outcomes increased from 2013 to 2019, apart from

[7]The number of full-time equivalent employees is calculated by adding the number of full-time workers to half the number of part-time workers.

short-run liabilities. Regarding the parish-level of outcomes, we see an increment in the average number of new firms and and new restaurants, but a decrease in the average number of new hotels and food retailers.

4 Identification strategies

4.1 Empirical framework

We track single-establishment firm f, located in civil parish p and city c (Lisbon or Porto), from 2008 to 2019 in

$$Y_{f,p,c,t} = \alpha_f + \lambda_{c\times t} + \beta \; Registries\ rate\ _{p,c,t} + \epsilon_{f,p,c,t} \tag{1}$$

where

$$Registries\ rate\ _{p,c,t} = \frac{Registries\ stock\ _{p,c,t}}{Housing\ stock\ _{p,c,2011}} \tag{2}$$

$Y_{f,p,c,t}$ is a firm-specific outcome of interest, as described in subsection 3.2. α_f are firm-level fixed effects that account for all time-invariant factors at the firm-level and $\lambda_{c\times t}$ account for city-level macro trends in inflation and other economic and financial conditions. β is our coefficient of interest. Standard errors are clustered at the civil parish level.

The impact of exposure to short-term rentals on local firms' survival, performance, and entry conditions is identified from spatial correlations, but estimating these effects is not straightforward due to measurement errors and other selection and endogeneity concerns. To deal with possible measurement errors in the registries stock, we show that our results are robust to an alternative proxy for short-term rental incidence at the local level. This measure is constructed by identifying firms that provide temporary accommodation services in our dataset using their full industry code (55201) in the Central Balance Sheet Harmonized panel data. With these firms (which amount to 783), we calculate the total sales per parish and year and express this as a share of the total sales in the same industry, year and municipality.

A key identification concern in our analysis is the potential endogeneity arising from concurrent sociodemographic transformations in the neighborhoods exhibiting the most pronounced growth in STR activity during the study period. These transformations, which are often associated with urban revitalization (Couture and Handbury, 2020, 2023; Brummet and Reed, 2021; Behrens et al., 2024), can independently influence both the performance of incumbent businesses and the propensity to attract new firms, thus confounding the observed relationship between STR expansion and local economic dynamics. In particular, Airbnb has proliferated most rapidly in central urban areas that have undergone significant regeneration over the past decade and a half, suggesting that STR growth may be intertwined with broader processes of urban change. To address these endogeneity concerns, besides controlling for firm- and city-year fixed effects, we propose two complementary empirical strategies that we describe in the following subsections.

4.2 Instrumental variable

The first strategy is to estimate equation (1) through a two stage least squares (2SLS) approach using an instrumental variable Z inspired by Garcia-López et al. (2020) for the registries rate.[8] Our instrument for $Registries\ rate_{p,c,t}$ is computed as

$$Z_{i,p,t} = \sum_{k=1}^{10} \frac{reviews_{k,2015}}{distance_{pk}} searches_t \tag{3}$$

where $reviews_{k,2015}$ is the number of reviews on TripAdvisor of the top ten touristic attractions k in each city (Lisbon and Porto) measured at the end of 2015 (the first moment for which data is available, while this ranking remained fairly similar in the following decade), as displayed in Table A2.[9] This popularity is weighted by $distance_{pk}$, the distance from each civil parish p to each of the tourist attractions. $searches_t$ represents worldwide Google searches for "Airbnb Portugal" between 2008 and 2019, which proxies for international tourism shocks unrelated to local firm performance. This may also suggest that Portugal, in these periods, was expected to receive a higher volume of tourists. Figure A1 in the Appendix illustrates the evolution of the yearly average Google search index.[10] As shown, searches for "Airbnb Portugal" rose sharply after 2013, coinciding with the rapid expansion of this type of accommodation in the country. Before 2014, the search volume remained relatively modest.

The main intuition is that short-term rentals are more likely to be located near (more popular) tourist attractions. The exclusion restriction requires that proximity to (more popular) historically set and long-established cultural attractions and monuments only affects changes in firm outcomes through changes in short-term rentals listings, conditional on a vector of individual firm and city-year fixed effects. At the same time, note that the demand for STR in both cities is also influenced by factors such as the Arab Spring protests and uprisings, which diverted tourism from Northern African territories to European countries (González and Surovtseva, 2025).

The instrument is similar to a shift-share or Bartik instrument as it combines a set of over-time shifts ($searches_t$) with exposure predetermined share weights. Borusyak et al. (2025) summarize the main identifying assumptions that are required for this type of instrument. We argue that our identification is based on the exogeneity of the shares à la Goldsmith-Pinkham et al. (2020).[11]

Before we proceed, it is important to understand the geographic scale of the analysis. Note that we are not comparing the municipalities of Lisbon and Porto to other municipalities in their respective metropolitan areas; rather, we are relying on variation between different neighborhoods within these two cities. The municipality of Lisbon accounts for 3.32% of the area and 18% of the

[8] Sá (2024) and Li et al. (2024) also use these type of IVs to study the effect of foreign investment on house prices and other outcomes in the UK and the USA, respectively.

[9] We show in the Appendix that our results remain robust with an alternative instrument that uses only tourist attractions with more than 5,000 reviews, arguably focusing on the most salient landmarks.

[10] This was calculated from monthly data, where the index takes the value of 100 for the month when there were more searches.

[11] An alternative approach, put forward by Borusyak et al. (2022), propose a framework based on the quasi-random assignment of shocks.

population (as of 2019) of its metropolitan area, while the corresponding figures for the municipality of Porto are 2.03% and 13%, respectively. Since both the control and comparison civil parishes are located within these two municipalities, our analysis excludes the suburbs and concentrates on the urban cores. Taking this into account, and as one of the exercises recommended by Borusyak et al. (2025) to assess the reliability of the approach, it is not surprising to see that balance tests reported in Table A3 in the Appendix, for a large vector of socioeconomic indicators, corroborate that these areas were very similar in the beginning of the period using data from the 2011 census.[12]

We also acknowledge the concerns raised by Jaeger et al. (2018) when dynamic adjustments and serial correlation are present. Specifically, if the share component of the instrument is correlated with past shocks that continue to affect outcomes, estimates can conflate the contemporaneous effect of the treatment with lingering effects from earlier periods. In our context, however, this concern is mitigated by the institutional timeline: Airbnb and other STR platforms only began to expand meaningfully in Portugal after 2013, following the 2014 legislative reform that simplified registration and formalized the sector. Before then, STR activity was negligible, as confirmed by registry (see Figure 1) and Google Trends data (see Figure A1 in the Appendix). This sharp and policy-driven onset of STR proliferation reduces the likelihood that our instrument is capturing dynamic responses to prior shocks.

As Borusyak et al. (2025) emphasize, identification from exogenous shares à la Goldsmith-Pinkham et al. (2020) can be viewed as pooling multiple difference-in-differences designs, each leveraging heterogeneous exposure to a common shock. This interpretation underscores the need to empirically verify that units with higher exposure to STRs were not already on diverging trajectories prior to the shock. To address this concern and strengthen the credibility of our identification strategy, we turn to an event-study framework that allows us to test for pre-trends and visualize the dynamic evolution of outcomes over time. This step is crucial to ensure that our estimates are not driven by pre-existing differences in firm performance across civil parishes with varying STR exposure (Goldsmith-Pinkham et al., 2020). That is precisely what we do in the next subsection.

4.3 Event study

The second strategy is a difference-in-differences event study (Roth et al., 2023), which can be described as follows:

$$Y_{f,p,c,t} = \alpha_f + \lambda_{n\times t} + \sum_{t=2008,\ t\neq 2013}^{2019} \beta_t \ \textit{Registries rate}_{\ p,c,2014} \times Year_t + \epsilon_{f,p,c,t} \tag{4}$$

where we interact yearly dummies with the registries rate in 2014, $\textit{Registries rate}_{p,c,2014}$, at the civil parish level, defining the intensity of treatment. $\textit{Registries rate}_{p,c,2014}$ is instrumented with the IV as in equation (3).

[12] This exercise is inspired by the work of Batalha et al. (2022). These authors compare the more *vis-à-vis* the less affected civil parishes by the STR platforms in Lisbon and show that the sociodemographic composition (as measured by population density, percentage of the population above 65 years old, percentage of the population with an university degree, and average commuting time) was not significantly different.

The choice of 2013 as the last pre-shock year is motivated by several facts. Visual inspection of both the evolution of the registries (Figure 1) and Google trends for worldwide searches on "Airbnb Portugal" (Figure A1 in the Appendix) confirms that STR were not an important phenomenon before 2013. In fact, as discussed in Section 2, policymakers only approved the reform that led to an exponential increase in this type of accommodation in 2014 (Nobre et al., 2023). Hence, we pick the year before such a change as the omitted year.

The event study allows us to provide suggestive evidence in favor of the nonexistence of differential pre-trends between 2008 and 2013 (Roth, 2022). In addition, it also provides a dynamic visualization of the effects over time. Callaway et al. (2024b,a) review the identification challenges and interpretational pitfalls that arise when treatment intensity varies across units and provide a rigorous foundation for interpreting dynamic effects. It is also important to note that, due to the spatial proximity of civil parishes and the nature of urban economic interactions, less treated areas may still benefit from spillover demand effects originating in more intensely treated neighborhoods. This holds true either if nationals divert their purchases from firms in more-affected areas to those in less-affected areas, or if tourists staying in these Airbnbs travel to shop in less-affected areas. As such, our estimates can be interpreted as a lower bound of the true effect of STR expansion on local business outcomes.

5 Results

We divide our analysis into three stages to study the effect of short-term rental platforms on firm survival, the performance of incumbent firms, and the challenges associated with entry.

5.1 Market exit

We start by looking at the impact on firm closure. We report the 2SLS results of estimating equation (1), instrumenting $Registries\ rate_{p,c,t}$ with Z as in equation (3), on the probability of exit in Table 1. The outcome variable Y is a dummy variable that takes the value one in the year the firms exits the market and zero otherwise. Before we discuss the results, we note that the first-stage F-statistics are all well above 10 (Stock et al., 2002), which provides evidence that our instrument is relevant in this context.

In column (1), we show a statistically significant increase in the probability of a firm exiting the market in more treated areas. Given a mean registries rate of 0.065 among our sample of firms, the point estimates correspond to an average increase of 0.091% $[(0.065 \times 0.014) \times 100]$ in the probability of exit. Furthermore, shifting from the 10th to the 90th percentile in the regression sample entails an exposure increase of 0.177, which, based on the estimated coefficients, translates into a 0.2% higher probability of exit. This effect is not statistically different from zero when we zoom in on the effect on restaurants, hotels, or food retailers. These results are confirmed using an event study specification as described in equation (4). We recall that, according to our sample definition, the exit rate is zero in 2013. In Figure 2, we show that there were no pre-shock differences in entry

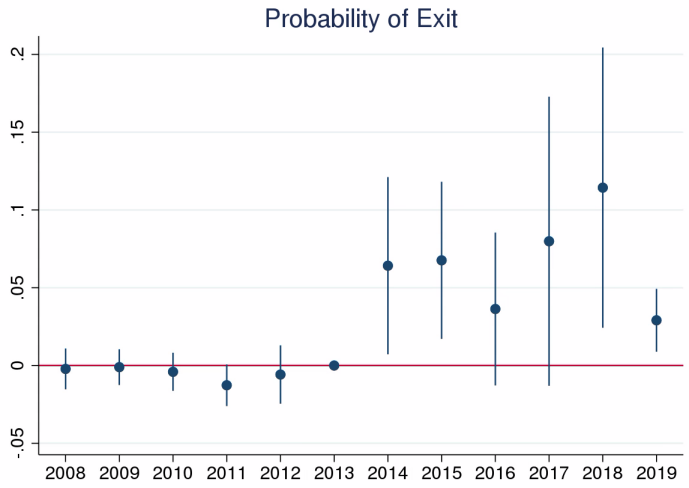
Table 1: The probability of exit increased in more treated areas - 2SLS

	Pr. Exit All firms	Pr. Exit Restaurants	Pr. Exit Hotels	Pr. Exit Food retailers	Pr. Exit All others
Registries Rate	0.014***	-0.0001	-0.012	-0.027	0.022***
	(0.003)	(0.011)	(0.028)	(0.020)	(0.003)
Firm FE	✓	✓	✓	✓	✓
City-year FE	✓	✓	✓	✓	✓
Observations	276,060	37,590	3,632	9,405	225,796
First-stage F-Stat	58.35	49.62	22.42	52.90	58.29
Mean registries rate	0.065	0.089	0.103	0.068	0.060

Note: This table displays the two-stage least square results of exposure to short-term rentals on probability of closure, where the outcome variable is a dummy variable that takes the value of 1 if firm exits the sample before 2019, and 0 otherwise. In column (1) we analyze the entire sample of firms, while in column (2) we look at restaurants, in column (3) hotels, in column (4) food retailers and in column (5) all other firms. All regressions include firm fixed effect, city-year fixed effect. Standard errors are clustered by civil parish. *** p<0.01, ** p<0.05, * p<0.1

rates for firms that existed in 2013, at least since 2008. However, when the number of houses rented in Airbnb and other online platforms starts to increase over time, the likelihood of a firm exiting the market in more affected areas increases.

Figure 2: Event-study: Market exit



Note: This graph displays the estimations for the Event-study as described in equation 4, where the outcome is a binary variable that takes the value of 1 in the year a firm exits the sample and 0 otherwise, and considering the entire sample of incumbent firms. The regression includes firm fixed effect, city-year fixed effect. Standard errors are clustered by civil parish. The bars denote the 95% confidence interval.

The idea that shocks can have cleansing effects by encouraging resources to be reallocated to higher productivity firms dates back at least to Schumpeter, but it is also known that even companies with good fundamentals can fail when exposed to fast changes in the local environment.[13]

[13] Recent evidence supports this mechanism, but also highlights relevant frictions. Cole et al. (2019) show that the Kobe earthquake led to the exit of less productive manufacturing plants, while surviving ones experienced temporary productivity gains. Basker and Miranda (2018), however, find that even productive firms may fail when exposed to capital shocks (such as destruction in Hurricane Katrina) if they face financial constraints, suggesting that shocks can also induce inefficient exits.

We investigate whether the effects of the emergence of STR platforms are heterogeneous depending on pre-shock firm conditions. We do so by estimating equation (1) using the 2SLS approach described before, but separately interacting *Registries rate*$_{p,c,t}$ with four financial ratios measured in 2013 at the firm-level and divided by quartiles: Return on Assets (ROA) defined as net income over total assets, Indebtedness ratio measured by total liabilities over total assets, liquidity ratio described as cash and bank deposits over short-term liabilities, and sales per worker, a proxy for labor productivity. The results are shown in Table 2.

Table 2: Exit effects were heterogeneous on pre-shock financial firm performance indicators - 2SLS

	Pr. exit	Pr. exit	Pr. exit	Pr. exit	Pr. exit
Registries rate	0.014***	0.100***	-0.040***	0.094***	0.218***
	(0.003)	(0.021)	(0.013)	(0.022)	(0.041)
2nd quartile ROA (2013) x Registries rate		-0.088***			
		(0.020)			
3rd quartile ROA (2013) x Registries rate		-0.138***			
		(0.034)			
4th quartile ROA (2013) x Registries rate		-0.131***			
		(0.030)			
2nd quartile Indebtedness ratio (2013) x Registries rate			0.006		
			(0.006)		
3rd quartile Indebtedness ratio (2013) x Registries rate			0.049***		
			(0.015)		
4th quartile Indebtedness ratio (2013) x Registries rate			0.148***		
			(0.036)		
2nd quartile liquidity ratio (2013) x Registries rate				-0.071***	
				(0.022)	
3rd quartile liquidity ratio (2013) x Registries rate				-0.110***	
				(0.026)	
4th quartile liquidity ratio (2013) x Registries rate				-0.138***	
				(0.034)	
2nd quartile sales per worker (2013) x Registries rate					-0.175***
					(0.033)
3rd quartile sales per worker (2013) x Registries rate					-0.215***
					(0.043)
4th quartile sales per worker (2013) x Registries rate					-0.254***
					(0.051)
Firm FE	✓	✓	✓	✓	✓
City-year FE	✓	✓	✓	✓	✓
Observations	276,060	274,864	274,864	273,879	274,892
First-stage F-stat	58.35	15.51	14.89	14.92	15.38
Mean registries rate	0.065	0.065	0.065	0.065	0.065

Note: This table reports heterogeneous two-stage least squares estimates of the effect of exposure to short-term rentals on the probability of firm closure, based on 2013 financial performance indicators, for the full sample of incumbent firms. Column (1) presents the baseline specification. In column (2), we interact the registry rate with an indicator for the firm's quartile in the return-on-assets distribution. In column (3), we interact the registry rate with an indicator for the firm's quartile in the indebtedness ratio distribution. In column (4), we use the liquidity ratio distribution, and in column (5), the sales-per-worker distribution. All regressions include firm fixed effect, city-year fixed effect. Standard errors are clustered by civil parish. *** p<0.01, ** p<0.05, * p<0.1

Consistent with a cleansing hypothesis, we find that less-productive establishments exited disproportionately following the initial shock. Across the four financial indicators, we report evidence that the probability of exit increases (almost monotonically) with less favorable pre-shock financial conditions. Thus, while STR exposure does not universally improve survival odds, it disproportionately benefits firms with stronger fundamentals, reinforcing the idea that STR expansion can act as a selective pressure in urban economic ecosystems.

Robustness. We show that our results are robust to several checks. First, replacing *Registries rate*$_{p,c,t}$ by an alternative measure, *Share of STR sales* $_{p,c,t}$, described in subsection 4.1, in Panel A of Table A4 in the Appendix, does not challenge our findings. The same is true if we add a vector of industry time trends to our 2SLS baseline specification, as shown in Panel B.[14] In Panel C we restrict to the municipality of Lisbon (which represents around 75% of our sample), while in Panel D we construct an instrument using only touristic attractions with more than 5000 reviews, yielding similar results. We present the same robustness exercises for our estimations on firm exit depending on pre-shock financial conditions, as shown in Tables A5, A6, A7. and A8.

5.2 Performance of incumbent firms

Next, we start by studying the effect on performance and employment indicators to shed light on the agents that benefited the most from the shock, focusing on business owners and workers directly involved in the local economy, as well as the public sector through potential increases in tax revenues. We then analyze the costs to have a better understanding of the mechanisms of adjustment. We recall that, for these firms, their location decision is predetermined, i.e., made before the emergence of STRs.

Table 3 presents the 2SLS results of estimating equation (1) with the IV described in equation (3). We first consider all single-establishment firms in Panel A. We find that both sales and profits (measured as earnings before taxes) increase more in more affected places, suggesting that capital owners gained from a rise in demand motivated by short-term rentals. A 1 percentage point increase in Registries rate (a 0.01 unit increase) is associated with an expected 0.106% and 1.534% in sales and earnings before taxes (EBT), respectively. Alternatively, the regression results indicate that moving the Registries rate across the 10 and 90th (a 0.17 increment) is associated with an approximate 2% increase in firm sales and a more substantial estimated increase of 26% in EBT. This windfall of resources did not seem to benefit the average worker in these areas as put forward by two indicators, one at the extensive margin (number of paid workers) and one at the intensive margin (average wage). These resources were also not used to invest in fixed tangible assets. The State budget also seems to gain as collected taxes increase relative more in more affected places. The point estimates suggest that moving along the 10-90 range in the registries rate distribution is associated with an increase of 8% in total tax, which is a measure that comprises both corporate income tax and consumption taxes (such as the VAT).[15]

The results are, however, different when we zoom in tourist-oriented sectors and in food retailers. In Panel B, we document that restaurants located in parishes more exposed to short-term rentals experience a highly statistically significant increase in sales. More precisely, moving across the 10-90 percentile of the regression sample, which corresponds to an increment of 0.33 of short-term rentals exposure, translates to an increase of approximately 13% in sales. This rise in sales is accompanied by an increment in the number of full-time equivalent employees, wages per worker,

[14] We use the first two digits of the industry code which amounts to 76 distinct sectors.

[15] A welfare analysis from the public finance point of view is outside the scope of our analysis in this paper as we would need more data on the increase in spending in items such as municipal cleaning services, police, among other costs.

Table 3: Firm's sales and profits increased in more treated areas - 2SLS

	Log Sales	Inv.hyp.sine EBT	Log Employees	Wages per worker	Log Tangible Assets	Log Total Tax
Panel A: All firms						
Registries rate	0.106**	1.534***	0.012	123.2	-0.008	0.453***
	(0.050)	(0.338)	(0.035)	(328.1)	(0.103)	(0.087)
Observations	265,994	276,060	262,753	276,060	230,631	254,369
First-stage F-stat	59.12	58.35	59.02	58.35	58.55	58.23
Mean Registries Rate	0.063	0.065	0.063	0.065	0.059	0.063
Panel B: Restaurants						
Registries rate	0.413***	2.459	0.226***	946.7***	0.605***	0.721***
	(0.108)	(1.552)	(0.071)	(252.3)	(0.120)	(0.223)
Observations	36,473	37,590	36,263	37,590	32,733	33,733
First-stage F-stat	50.39	49.62	49.50	49.62	50.47	48.58
Mean Registries Rate	0.087	0.089	0.087	0.089	0.082	0.088
Panel C: Hotels						
Registries rate	0.125	-4.874*	0.201	3248.4**	0.121	0.116
	(0.156)	(2.421)	(0.147)	(1400.0)	(0.293)	(0.338)
Observations	3,485	3,632	3,450	3,632	3,360	3,389
First-stage F-stat	22.35	22.42	22.75	22.42	23.52	21.00
Mean Registries Rate	0.100	0.103	0.102	0.103	0.102	0.105
Panel D: Food retailers						
Registries rate	0.384***	-1.553	0.231*	1804.6***	0.150	0.078
	(0.119)	(1.232)	(0.118)	(644.2)	(0.316)	(0.215)
Observations	8,753	9,017	8,646	9,017	7,177	8,32
First-stage F-stat	54.07	52.90	54.48	52.90	55.18	52.59
Mean Registries Rate	0.068	0.071	0.068	0.071	0.061	0.069
Firm FE	✓	✓	✓	✓	✓	✓
City-year FE	✓	✓	✓	✓	✓	✓

Note: This table reports the two-stage least square results on firm performance indicators for the overall sample of incumbent firms (Panel A), for restaurants (Panel B), for hotels (Panel C) and food retailers (Panel D). In column (1) the outcome variable is logarithm of sales, in column (2) is the inverse hyperbolic sine of Earnings before Taxes (EBT), in column (3) is the logarithm of Full-time equivalent (FTE) employees, in column (4) is the wage bill divided by the number of FTE employees, in column (5) is the logarithm of tangible assets and in column (6) is the logarithm of total taxes paid (consumption + corporate income taxes). We winsorize the 1st and 99th percentile of all outcome measures, prior to the transformations. All regressions include firm fixed effect, city-year fixed effect. Standard errors are clustered by civil parish. *** p<0.01, ** p<0.05, * p<0.1

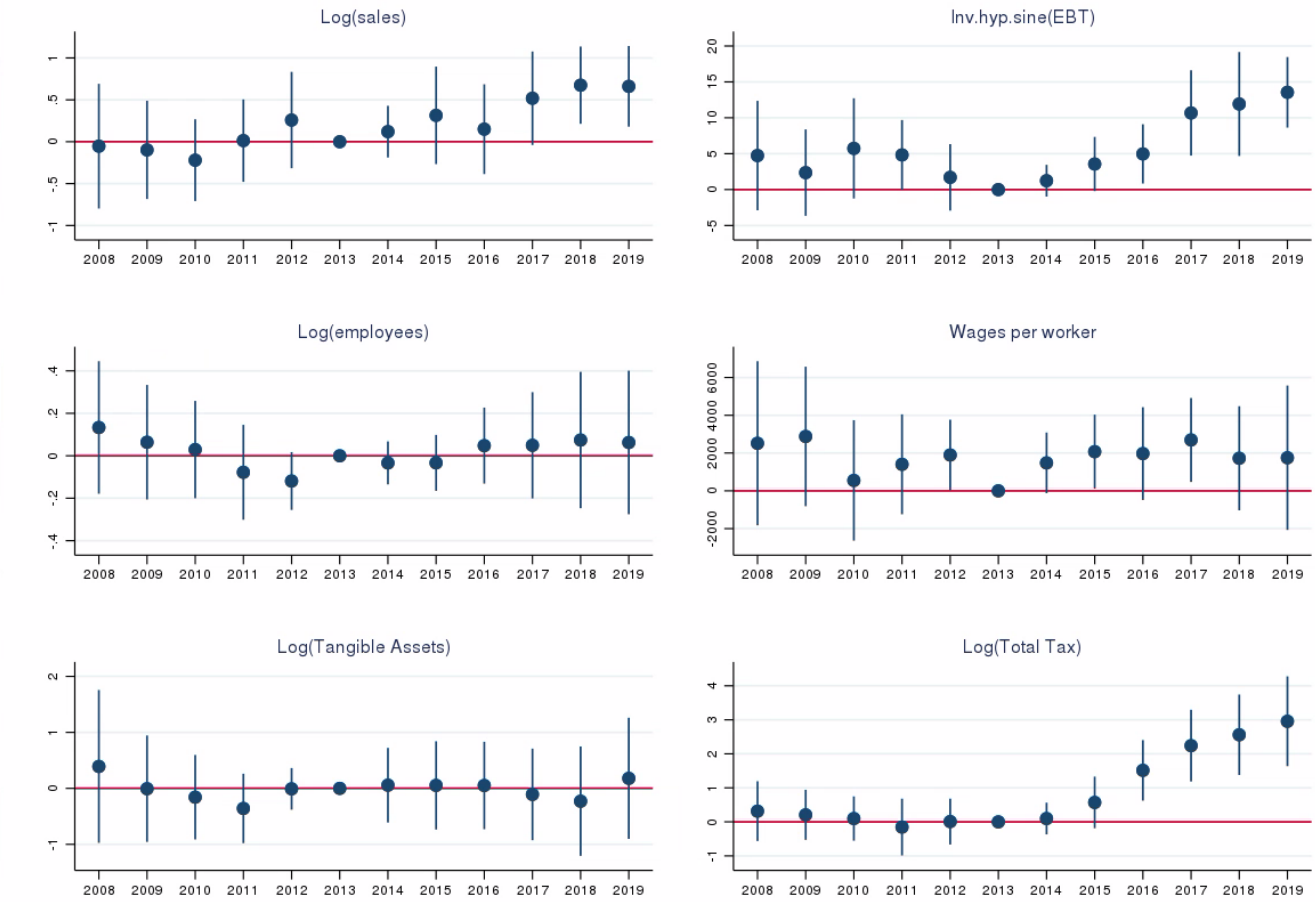
and tangible assets. This suggests that restaurants respond to increased demand by hiring more workers, increasing their pay, and investing more heavily in the firm's assets. Furthermore, we also conclude that restaurants end up paying relatively more taxes in more intensely treated areas.[16] Consequently, as the costs (wages, investment, taxes) increase alongside revenue, we do not observe a statistically significant increase in earnings before taxes. In contrast, hotels, depicted in Panel C, suffered from more competition driven by the emergence of Airbnb and other platforms and saw a decline in profits in relative terms, in more affected places. This is partly explained by the need to pay higher average wages to retain their workforce. Lastly, the results in Panel D for food retailers mimic those found for restaurants, with the exception of the impact on the investment in tangible assets and on tax payments. Concretely, a movement along the 10-90 percentiles (0.18 increment)

[16] During our sample period, the VAT rate applied to restaurant services in Portugal was increased to 23% in 2012 as part of the fiscal consolidation program under the Troika, and later reduced to 13% in 2016 following a policy reversal by the Socialist Government. While these changes may have affected the level of tax payments reported by firms, they are unlikely to bias our estimates as they applied uniformly across civil parishes and thus do not vary systematically with STR exposure.

leads to an increase in sales of approximately 7%. However, while an increment in restaurants' sales led to an increase in tax revenues, an increase in food retailers' sales did not have a statistically significant effect on tax collection.

All these findings are confirmed when we employ the event study strategy outlined in equation (4). We present the results in Figure 3. For all outcomes, and considering private single-establishment firms from all sectors of activity, our event studies present compelling evidence that the parallel trend assumption is likely to hold (Roth, 2022), which provides further reassurance on the reliability of our shift-share IV results (Goldsmith-Pinkham et al., 2020).

Figure 3: Event-study: Performance of incumbent firms



Note: These graphs display the estimations for the Event-study as described in equation 4. The outcome variables are the same as used in Table 3 and we considering the entire sample of incumbent firms. The regressions includes firm fixed effect, city-year fixed effect. Standard errors are clustered by civil parish. The bars denote the 95% confidence interval.

We show that sales, earnings before tax, and tax payments exhibit an increasing trend after 2013, the pre-shock year, that is persistent until our sample period. Moreover, the effects are only statistically significant in the later years of our sample, which is consistent with the patterns on the demand for Airbnb shown in Figures 1 and A1 in the Appendix. With respect to employment

and investments in tangible assets, we report point estimates very close to zero.

While the expansion of STRs has introduced new opportunities, especially for tourism and hospitality, it may also have posed significant challenges for incumbent firms operating in affected areas. Incumbent firms may face pressure on prices, reduced customer loyalty, and shifts in consumer preferences. Moreover, the reallocation of housing stock towards STRs can drive up commercial rents. These pressures could be particularly acute for smaller firms with limited capacity to adapt. Understanding these adverse effects is essential to fully assess the net impact of STR growth on local economic ecosystems. We analyze these possibilities in Table 4.

Table 4: Firm's expenses and liabilities increased in more treated areas - 2SLS

	Log Total Expenses	Log Wage Bill	Log Production costs	Log Rent	Log SR Liabilities	Log LR Liabilities
			Panel A: All firms			
Registries Rate	0.065	0.026	0.056	0.321***	0.104**	0.252***
	(0.045)	(0.054)	(0.046)	(0.060)	(0.045)	(0.064)
Observations	273,253	262,151	272,515	192,410	272,328	153,229
First-stage F-stat	58.70	59.44	58.63	54.36	58.38	51.52
Mean Registries Rate	0.064	0.063	0.064	0.067	0.064	0.071
			Panel B: Restaurants			
Registries Rate	0.394***	0.325***	0.368***	0.414***	0.217**	0.105
	(0.089)	(0.086)	(0.087)	(0.070)	(0.101)	(0.126)
Observations	37,128	36,258	37,017	31,175	37,122	20,253
First-stage F-stat	49.71	49.92	49.78	48.78	49.48	43.99
Mean Registries Rate	0.088	0.087	0.088	0.089	0.089	0.100
			Panel C: Hotels			
Registries Rate	0.442*	0.0263	0.485**	0.832***	0.656*	0.326
	(0.222)	(0.205)	(0.209)	(0.297)	(0.334)	(0.465)
Observations	3,613	3,449	3,609	2,948	3,586	2,299
First-stage F-stat	22.17	22.11	22.09	22.53	22.68	20.25
Mean Registries Rate	0.102	0.102	0.102	0.103	0.100	0.117
			Panel D: Food retailers			
Registries Rate	0.369***	0.383**	0.385***	0.576***	0.406**	0.193
	(0.117)	(0.170)	(0.119)	(0.158)	(0.184)	(0.214)
Observations	8,921	8,610	8,893	7,192	8,874	4,769
First-stage F-stat	53.45	54.58	53.43	54.94	53.53	41.37
Mean Registries Rate	0.070	0.068	0.070	0.070	0.071	0.084
Firm FE	✓	✓	✓	✓	✓	✓
City-year FE	✓	✓	✓	✓	✓	✓

Note: This table reports the two-stage least square results on firm's expenses and liabilities indicators for the overall sample of incumbent firms (Panel A), for restaurants (Panel B), for hotels (Panel C) and food retailers (Panel D). In column (1) the outcome variable is logarithm of total expense, in column (2) is logarithm of the wage bill, in column (3) is the logarithm of Production Costs (costs of goods sold + costs of external supplies), in column (4) is the logarithm of rent reported by firms, in column (5) is the logarithm of short-run liabilities and in column (6) is the logarithm of long-run liabilities. We winsorize the 1st and 99th percentile of all outcome measures, prior to the transformations. All regressions include firm fixed effect, city-year fixed effect. Standard errors are clustered by civil parish. *** p<0.01, ** p<0.05, * p<0.1

We observe statistically significant increases in total expenses, wage bill and production costs (which included costs of goods sold and materials consumed and the acquisition of external services) for restaurants and food retailers. Moreover, all sectors experienced a robust and highly significant increase in rents. More precisely, moving across the 10-90 percentiles of the shock leads to an increment of approximately 5%, 14%, 34% and 10% in rents for the overall sample of incumbent firms, restaurants, hotels and food retailers, respectively. We note, however, that only around 60%

of firms report the rents, leading to a lower number of observations. This positive and robust effect on rents is consistent with previous research, as Nobre et al. (2023) found that short-term rentals led to an increase on the value of commercial properties, in the Portuguese metropolitan areas, especially stores.

Lastly, we show that both short-run and long-run liabilities increased relatively more in affected areas. These effects appear to be particularly pronounced for short-run liabilities (which include accounts payable to suppliers, short-term bank loans, expenses like wages and taxes, and the current portion of long-term debt), where we estimate statistically significant effects for the overall sample and across the three sectors of activity we examine.

Robustness. Our results are robust to several exercises. First, we substitute the endogenous variable by an alternative measure, the share of STR sales at the civil parish level, in Tables A9 and A10 in the Appendix. All results are very similar to baseline, with the following differences: while an increase in restaurants' profits is more precisely estimated in this case, increases in short-run liabilities and expenses are less precisely estimated. Second, when we add industry-specific time trends in the baseline specification in Tables A11 and A12, the results also remain very similar.

In addition, we report results restricting the universe of single-establishment firms of all sectors to i) a balanced sample in Table A13 and ii) considering only the municipality of Lisbon in Table A14 in the Appendix. While we acknowledge that our baseline results are conditional on survival, which could potentially lead to selection concerns if exit is correlated with treatment and positively biased effects, we find that results remain qualitatively similar when we rely on a balanced panel of 2013 firms present throughout 2008–2019. This suggests that selection does not seem to be driving our baseline findings. One difference is that we find significant positive effects on expenses, which in this case increase relatively more in more affected areas. When we focus on firms located in the capital, our conclusions also remain robust. The only difference is a statistically significant increase in employment in more treated areas, which translates into an increase in wage bill expenses. Furthermore, we also look at the outcome variables in levels, with the results displayed in Table A15. The estimations are consistent with the baseline results, finding robust increases in sales, EBT, total tax paid and rent. Lastly, in Table A16 and Figure A2 we use an instrumental variable constructed using only touristic attractions with more than 5000 reviews. The results, once again, remain very similar to baseline.

5.3 The challenges of entering

We now examine whether the entry of STR platforms can further disrupt established market dynamics by intensifying competition for local demand. In this subsection, we consider all firms that decide to enter the municipalities of Lisbon and Porto between 2008 and 2019. We start by exploring how exposure to short-term rentals influenced the number of entry firms per year at the civil parish level. We present these results in Table 5. In column (1) our outcome is the number of new firms per year and civil parish, while in columns (2)-(4) we disaggregated the number of new businesses by sector. We employ city-year fixed effects and transform our variables with the inverse

hyperbolic sine, as we want to keep the instances where the outcome is equal to 0. Our results illustrate that exposure to short-term rental did not affect the overall number of new firms per year at the civil parish level. However, when analyzing by sector we find robust and statistically significant effects on the number of new restaurants, hotels and food retailers. Given that a movement along the 10th-90th percentile, corresponds to an increase of 0.16 in registries rate, the point estimates translate into an increment of approximately 40%, 35% and 19% of new restaurants, hotels and food retailers. .

Taking these results together, while we do not observe a relatively higher probability of exit in more affected civil parishes for restaurants, hotels, and food retailers (see Table 1), we find that entry competition increases precisely in these sectors. These competitive forces appear to extend beyond just firm entry. We also find that incumbent restaurants, hotels and food retailers increase the number of employees and raise wages. This concurrent rise in wages and employment could suggest a tightening labor market, where incumbent firms may be proactively paying more to retain their existing workforce or to attract qualified staff in response to the increased competition and demand generated by the STR market. This could indicate that the disruption is not merely about new businesses starting, but might translate into a shift in the market equilibrium, affecting operational costs and the overall structure of local business environments.

These results also highlight the heterogeneous effects within sectors. When considering the entire sample of firms, the overall market dynamics appear stable regarding entry, as evidenced by no significant increase in the total number of new firms at the civil parish level. This lack of aggregate entry competition provides a possible explanation for the observed increase in earnings before taxes for incumbent firms across the whole sample (Table 3). Incumbent firms, facing no overall intensification of rivalry for general demand, may benefit from broader positive externalities associated with the STR platforms (e.g., increased general tourism traffic or spending). However, this picture changes drastically when focusing on specific sectors such as restaurants, hotels, and food retailers. In these sectors, there is a robust and statistically significant increase in the number of new firms, intensifying competition in the relevant markets. Consequently, these firms do not necessarily benefit form higher earnings before taxes, with most of the positive effects accruing to the employers in the form of higher wages. Our analysis appears to suggest that the heightened rivalry from new entrants erodes potential profit gains, leading to a stabilization or even a decrease in profits compared to the overall average.

Table 5: Effect on the number of new firms - 2SLS

	Inv.hyp.sine New firms	Inv.hyp.sine New restaurants	Inv.hyp.sine New Hotels	Inv.hyp.sine New Food retailers
Registries Rate	0.659	2.526***	2.216***	1.187*
	(0.519)	(0.659)	(0.431)	(0.584)
Observations	348	348	348	348
First-stage F-statistic	69.12	69.12	69.12	69.12
Mean Registries Rate	0.060	0.060	0.060	0.060
City-year FE	✓	✓	✓	✓

Note: This table presents the results of exposure of short-term rentals on the number of new firms. In column (1) we use as outcome the number of new firms per parish and year, in column (2) the number of new restaurants, in column (3) the number of new hotels and in column (4) the number of new food retailers. We employ a inverse hyperbolic sine transformation to the outcome variables. All regressions include city-year fixed effect. Standard errors are clustered by civil parish. *** p<0.01, ** p<0.05, * p<0.1

We then study the entry conditions for start-ups, by using the same outcome variables as in the previous subsection, but only in the first year they are in the sample. We note that we are not including firm fixed effects as we are only observing each start-up once. Therefore, we replace it with industry time trends, to still control for unobservable characteristics at the industry levels. The estimations are presented in Table 6.

Table 6: Effect on entry firms - first year in the sample - 2SLS

	Log Sales	Inv.hyp.sine EBT	Log Employees	Wages per worker	Log Tangible Assets	Log Total Tax
Registries Rate	0.173	-1.727***	0.300***	289.8	0.230	0.157
	(0.157)	(0.453)	(0.103)	(901.1)	(0.130)	(0.242)
Observations	51,783	51,783	51,459	51,783	41,705	47,824
First-stage F-stat	58.81	58.81	58.78	58.81	62.10	57.94
Mean Registries Rate	0.035	0.035	0.035	0.035	0.025	0.033
	Log Total Expenses	Log Wage Bill	Log Production costs	Log Rent	Log SR Liabilities	Log LR Liabilities
Registries Rate	0.331**	0.250*	0.339*	0.645***	0.574***	0.382**
	(0.150)	(0.128)	(0.166)	(0.170)	(0.192)	(0.172)
Observations	51,783	51,783	51,741	36,161	51,359	19,120
First-stage F-stat	58.81	58.81	58.73	57.96	58.66	61.73
Mean Registries Rate	0.035	0.035	0.035	0.031	0.035	0.050
City-year FE	✓	✓	✓	✓	✓	✓
Industry time trends	✓	✓	✓	✓	✓	✓

Note: This table reports the two-stage least square results on conditions of firm entry. As outcomes we consider the same variables as in Tables 3 and 4, but we consider only the first year a firm is the sample. We winsorize the 1st and 99th percentile of all outcome measures, prior to the transformations. All regressions include city-year fixed effect and industry time trends. Standard errors are clustered by civil parish. *** p<0.01, ** p<0.05, * p<0.1

New firms entering high-STR areas face a more complex landscape. Start-ups in these civil parishes tend to hire more workers and report higher sales (although non-significant point estimates) in their first year, but they also face significantly higher operational costs, including rent and short-run liabilities, and lower first-year profitability. This indicates that although STR growth stimulates entrepreneurship and demand, incumbents may be better positioned to capitalize on these shocks

due to their established presence and ability to absorb rising costs. In contrast, new entrants face steeper barriers to profitability, suggesting that STR exposure may reinforce the competitive advantage of surviving incumbents rather than leveling the playing field.

Robustness. Our estimations on the number of new firms are probed by same robustness exercises as in the previous subsections, as displayed in Tables A17, A18, and A19. However, when restricting to Lisbon or just using attractions with more than 5000 reviews for the instrument, there is no longer a statistically significant effect on the number of new food retailers. Moreover, when testing for firm entry conditions, the main conclusions remain broadly consistent, although the results exhibit some variation. While we continue to observe a decline in first-year profitability across all specifications, restricting the sample to Lisbon yields a marginally significant increase in sales. In contrast, when using the alternative instrument, the decline in profitability appears to be driven exclusively by an increase in rents. This can be seen in Tables A20, A21 and A22.

6 Concluding remarks

Over the last decade and a half, several studies have identified the impact of STRs and homesharing platforms on housing prices in different cities and contexts. The role these services play in driving the demand for consumption and leisure amenities has also been documented. However, the impact on the local business environment has remained largely unaddressed. We fill this gap in the literature by using geolocated administrative firm-level accounting data for Portugal, from 2008 to 2019, and exploiting spatial exposure levels within the municipalities of Porto and Lisbon.

We find that STR expansion reallocates resources to more productive firms, but raises barriers for new entrants. Gains accrue mainly to capital owners and the state (via taxes), but they do not translate into broad employment or investment effects outside the restaurant sector. At the same time, STR expansion raises operational costs such as rents and short-run liabilities, creating financial pressures for businesses. We also show that STR proliferation stimulates local entrepreneurship, especially in tourism-related sectors, but new entrants face higher initial costs and lower first-year profitability. These patterns suggest that STR-driven tourism shocks may reinforce the competitive advantage of established firms rather than level the playing field for newcomers, highlighting distributional implications of tourism shocks.

Taken together, our results highlight the nuanced and uneven effects of STR platforms on urban economic ecosystems. While our analysis focuses on Lisbon and Porto, two cities with among the highest densities of short-term rentals in Europe, we believe these cases offer valuable insights for understanding the broader economic implications of STR proliferation. Both cities have experienced rapid tourism growth and intense STR activity, making them ideal settings to observe the mechanisms through which tourism-driven demand shocks affect local business dynamics. We argue that many of the mechanisms we uncover such as increased competition and exit, rising commercial rents, and heterogeneous firm responses are also relevant in other urban contexts, particularly in global cities undergoing similar transformations due to the expansion of STR platforms.

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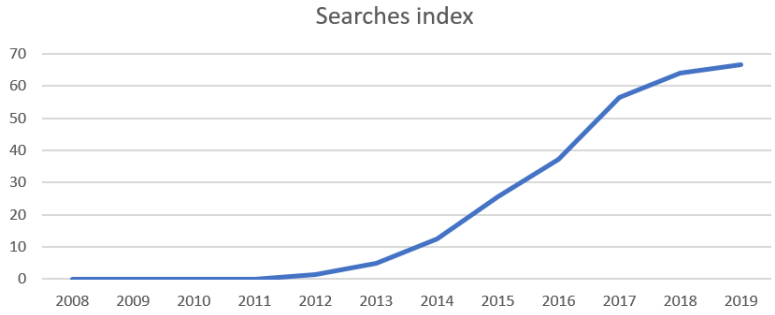
A Appendix

Figure A1: Worldwide Google searches for "Airbnb Portugal´´



Note: This figure shows an annual average of the index for worldwide searches for Airbnb Portugal

Table A1: Descriptive Statistics for incumbents firms - Highly vs low treated areas

	2013	2019
Panel A: *Firm-level outcomes*		
Sales	420,638.6	521,201
	(1,080,358)	(1,268,614)
Earnings before taxes (EBT)	20,274.74	45,308.45
	(125,583.2)	(158,266.4)
FTE Employees	4.966	5.367
	(8.008)	(9.122)
Wages per worker	14,677.89	15,174.03
	(10,690.37)	(12,041.72)
Tangible Assets	120,790.3	151,397.8
	(413,669.1)	(470,423)
Total Tax	8,384.5	11,301.62
	(24,093.32)	(29,377.4)
Total Expenses	454,462.3	532,634.7
	(1,168,715)	(1,319,168)
Wage Bill	94,920.35	114,562
	(216,132.9)	(247,864.7)
Production Costs	280,030.7	334,942.9
	(746,675.3)	(864,146.7)
Rent	19,122.83	22,945.49
	(43,967.82)	(49,773.72)
Short-run Liabilities	290,185.6	288,102.6
	(879,753.2)	(885,319.3)
Long-run Liabilities	122,014.1	140,055.7
	(493,768.4)	(513,110.3)
Panel B: *Parish-level outcomes*		
Number of new firms	107.6	114.3
	(64.83)	(68.39)
Number of new restaurants	9.07	11.1
	(7.78)	(12.51)
Number of new hotels	1.0	0.6
	(1.72)	(1.02)
Number of new food retailers	3.8	2.1
	(2.73)	(1.77)

Note: This table presents a set descriptive statistics. In Panel A we present mean and standard deviation (in parentheses) for firm-level outcomes such as sales, earnings before taxes, full-time equivalent employees, wages per worker, tangible assets, total tax paid, total expenses, wage bill, production costs, rent, short and long-run liabilities, while in Panel B we present such statistics for parish-level outcomes such as number of new firms, new restaurants, new hotels and new food retailers. Statistics are shown for incumbent firms in all parishes (columns 1–2). Data are reported for 2013 (the pre-shock year) and 2019 (the end of the sample period).

Table A2: Top 10 tourist attractions in Lisbon and Porto

Lisbon		Porto	
Name attraction	Nr Reviews	Name attraction	Nr Reviews
Oceanário	14,221	Zona Ribeirinha	6,355
Torre Belém	12,371	Ponte D. Luis	5,851
Castelo São Jorge	8,179	Clérigos	2,742
Jerónimos	7,299	Livraria Lello	2,110
Alfama	6,227	Palacio Bolsa	1,581
Bairro alto	5,168	Sé Catedral	1,416
Museu Fundação Caloustre Gulbenkian	4,320	Rua Santa Catarina	1,199
Chiado	3,764	Igreja S. Francisco	1,143
Praça Comércio	3,130	Serralves	1,079
Arco Rua Augusta	2,250	Casa Música	990

Note: This table presents the name of the top 10 tourist attractions in Lisbon and Porto and the corresponding number of TripAdvisor reviews in 2015.

Table A3: Descriptive Statistics - Balance Tests - Highly vs low treated civil parishes

	Low treated	Highly Treated	Difference
Population density (N°/km2)	6,602.957	6,715.259	112.302
	(2,691.006)	(3,529.745)	(1,189.856)
Cannot read (%)	3.027	3.376	0.349
	(1.476)	(0.952)	(0.539)
Completed high school (%)	49.355	46.203	-3.152
	(13.946)	(8.931)	(5.085)
Completed university (%)	32.477	28.440	-4.036
	(12.856)	(8.221)	(4.687)
Unemployment Rate (%)	13.466	13.337	-0.129
	(4.132)	(2.940)	(1.533)
Share residents above 65 (%)	23.422	25.723	2.300
	(4.577)	(1.827)	(1.592)
Average commuting time (in min)	22.198	22.529	0.331
	(2.606)	(2.134)	(0.994)
Number of parishes	20	9	

Note: This table presents a set of balance tests for socioeconomic measures from Census 2011. The classification of highly and low treated parishes was performed using the map in Figure 1 as basis, as highly treated parishes are those shaded in darker tones of blue. Concretely, for Porto we considered as highly treated União das freguesias de Cedofeita, Santo Ildefonso, Sé, Miragaia, São Nicolau e Vitória and for Lisbon we considered Alcântara, Estrela, Misericórdia, Santo António, Santa Maria Maior, Arroios, São Vicente, Beato

Robustness - Probability of Exit

Table A4: Effect on probability of exit - robustness - 2SLS

	All firms Pr. Exit	Restaurants Pr. Exit	Hotels Pr. Exit	Food retailers Pr. Exit	All others Pr. Exit
Panel A: Alternative measure					
Share airbnb sales	0.017***	-0.0001	-0.014	-0.033	0.026***
	(0.005)	(0.013)	(0.032)	(0.029)	(0.005)
Firm FE	✓	✓	✓	✓	✓
City-year FE	✓	✓	✓	✓	✓
Observations	276,060	37,590	3,632	9,017	225,774
First-stage F-Stat	78.18	59.29	89.24	30.45	86.61
Mean share airbnb sales	0.229	0.271	0.431	0.234	0.217
Panel B: Adding Industry time trends					
Registries Rate	0.014***	0.001	-0.012	-0.027	0.021***
	(0.003)	(0.011)	(0.028)	(0.020)	(0.003)
Firm FE	✓	✓	✓	✓	✓
City-year FE	✓	✓	✓	✓	✓
Industry time trends FE	✓	✓	✓	✓	✓
Observations	276,058	37,590	3,632	9,017	225,772
First-stage F-Stat	58.48	50.84	22.41	52.68	58.41
Mean registries rate	0.065	0.089	0.103	0.071	0.060
Panel C: Just Lisbon					
Registries Rate	0.012***	-0.001	-0.021	-0.032	0.020***
	(0.004)	(0.012)	(0.031)	(0.022)	(0.004)
Firm FE	✓	✓	✓	✓	✓
City-year FE	✓	✓	✓	✓	✓
Observations	197,685	28,414	2,418	6,595	160,222
First-stage F-Stat	53.04	46.02	19,56	47.82	43.34
Mean registries rate	0.072	0.098	0.118	0.077	0.066
Panel D: Restricting tourist attractions					
Registries Rate	0.015***	0.001	0.006	-0.039	0.022***
	(0.004)	(0.012)	(0.031)	(0.023)	(0.004)
Firm FE	✓	✓	✓	✓	✓
City-year FE	✓	✓	✓	✓	✓
Observations	276,060	37,590	3,632	9,017	225,774
First-stage F-Stat	92.60	112.5	56.55	90.09	80.32
Mean registries rate	0.065	0.089	0.103	0.071	0.060

Note: This table presents robustness exercises for the two-stage least squares estimates of the effect of exposure to short-term rentals on the probability of firm closure. The outcome variable is a dummy equal to 1 if the firm exits the sample before 2019, and 0 otherwise. Column (1) reports results for the full sample of firms, column (2) for restaurants, column (3) for hotels, column (4) for food retailers, and column (5) for all other firms. In Panel A, we use an alternative measure of exposure to short-term rentals, constructed by identifying firms that provide temporary accommodation services in our dataset based on their full industry code, calculating total sales per parish and year, and expressing this as a share of total industry sales at the municipality level. In Panel B, we use the baseline exposure measure and include industry-specific time trends in the specification. In Panel C we restrict to the municipality of Lisbon while In Panel D we create a new instrument by restricting to touristic attractions with more than 5000 reviews. All regressions include firm fixed effects, city-year fixed effects,. Standard errors are clustered at the civil parish level. *** p<0.01, ** p<0.05, * p<0.1.

Table A5: Effect on probability of exit - robustness: alternative measure - 2SLS

	Pr. exit	Pr. exit	Pr. exit	Pr. exit	Pr. exit
Share airbnb sales	0.017**	0.154***	-0.064**	0.139**	0.347***
	(0.005)	(0.055)	(0.027)	(0.054)	(0.097)
2nd quartile ROA (2013) x Share airbnb sales		-0.138**			
		(0.051)			
3rd quartile ROA (2013) x Share airbnb sales		-0.214**			
		(0.080)			
4th quartile ROA (2013) x Share airbnb sales		-0.205**			
		(0.075)			
2nd quartile Indebtedness ratio (2013) x Share airbnb sales			0.009		
			(0.009)		
3rd quartile Indebtedness ratio (2013) x Share airbnb sales			0.075**		
			(0.033)		
4th quartile Indebtedness ratio (2013) x Share airbnb sales			0.228**		
			(0.086)		
2nd quartile liquidity ratio (2013) x Share airbnb sales				-0.108**	
				(0.051)	
3rd quartile liquidity ratio (2013) x Share airbnb sales				-0.168**	
				(0.062)	
4th quartile liquidity ratio (2013) x Share airbnb sales				-0.211**	
				(0.086)	
2nd quartile sales per worker (2013) x Share airbnb sales					-0.283***
					(0.077)
3rd quartile sales per worker (2013) x Share airbnb sales					-0.346***
					(0.100)
4th quartile sales per worker (2013) x Share airbnb sales					-0.405***
					(0.118)
Firm FE	✓	✓	✓	✓	✓
City-year FE	✓	✓	✓	✓	✓
Observations	276,060	274,864	274,864	273,879	274,892
First-stage F-stat	78.18	11.81	13.13	19.62	6.95
Mean share airbnb sales	0.229	0.229	0.229	0.229	0.229

Note: This table reports robustness exercises on the heterogeneous two-stage least squares estimates of the effect of exposure to short-term rentals on the probability of firm closure, based on 2013 financial performance indicators, for the full sample of incumbent firms. We use an alternative measure of exposure to short-term rentals, constructed by identifying firms that provide temporary accommodation services in our dataset based on their full industry codes, calculating total sales per parish and year, and expressing this as a share of total industry sales at the municipality level. Column (1) presents the baseline estimation on probability of exit. In column (2), we interact the exposure measure with an indicator for the firm's quartile in the return-on-assets distribution. In column (3), we interact the exposure measure with an indicator for the firm's quartile in the indebtedness ratio distribution. In column (4), we use the liquidity ratio distribution, and in column (5), the sales-per-worker distribution. All regressions include firm fixed effect, city-year fixed effect. Standard errors are clustered by civil parish. *** p<0.01, ** p<0.05, * p<0.1

Table A6: Effect on probability of exit - robustness: adding industry time trend - 2SLS

	Pr exit	Pr exit	Pr exit	Pr exit	Pr exit
Registries Rate	0.014**	0.101***	-0.039***	0.094***	0.221***
	(0.003)	(0.021)	(0.013)	(0.022)	(0.042)
2nd quartile ROA (2013) x Registries Rate		-0.088***			
		(0.020)			
3rd quartile ROA (2013) x Registries Rate		-0.138***			
		(0.034)			
4th quartile ROA (2013) x Registries Rate		-0.132***			
		(0.030)			
2nd quartile Indebtedness ratio (2013) x Registries Rate			0.006		
			(0.006)		
3rd quartile Indebtedness ratio (2013) x Registries Rate			0.049***		
			(0.015)		
4th quartile Indebtedness ratio (2013) x Registries Rate			0.148***		
			(0.036)		
2nd quartile liquidity ratio (2013) x Registries Rate				-0.071***	
				(0.022)	
3rd quartile liquidity ratio (2013) x Registries Rate				-0.110***	
				(0.027)	
4th quartile liquidity ratio (2013) x Registries Rate				-0.138***	
				(0.036)	
2nd quartile sales per worker (2013) x Registries Rate					-0.174***
					(0.033)
3rd quartile sales per worker (2013) x Registries Rate					-0.215***
					(0.043)
4th quartile sales per worker (2013) x Registries Rate					-0.254***
					(0.050)
Firm FE	✓	✓	✓	✓	✓
City-year FE	✓	✓	✓	✓	✓
Industry time trends	✓	✓	✓	✓	✓
Observations	276,058	274,862	274,862	273,877	274,890
First-stage F-stage	58.41	15.55	14.93	14.96	15.41
Mean Registries Rate	0.065	0.065	0.065	0.065	0.065

Note: This table reports robustness exercises on the heterogeneous two-stage least squares estimates of the effect of exposure to short-term rentals on the probability of firm closure, based on 2013 financial performance indicators, for the full sample of incumbent firms. Column (1) presents the baseline estimation on probability of exit. In column (2), we interact the registry rate with an indicator for the firm's quartile in the return-on-assets distribution. In column (3), we interact the registry rate with an indicator for the firm's quartile in the indebtedness ratio distribution. In column (4), we use the liquidity ratio distribution, and in column (5), the sales-per-worker distribution. All regressions include firm fixed effect, city-year fixed effect, industry time trends. Standard errors are clustered by civil parish. *** p<0.01, ** p<0.05, * p<0.1

Table A7: Effect on probability of exit - robustness: just Lisbon - 2SLS

	Pr exit	Pr exit	Pr exit	Pr exit	Pr exit
Registries Rate	0.012**	0.094***	-0.037***	0.087***	0.191***
	(0.003)	(0.022)	(0.014)	(0.021)	(0.035)
2nd quartile ROA (2013) x Registries Rate		-0.086***			
		(0.022)			
3rd quartile ROA (2013) x Registries Rate		-0.131***			
		(0.036)			
4th quartile ROA (2013) x Registries Rate		-0.121***			
		(0.030)			
2nd quartile Indebtedness ratio (2013) x Registries Rate			0.005		
			(0.006)		
3rd quartile Indebtedness ratio (2013) x Registries Rate			0.041***		
			(0.014)		
4th quartile Indebtedness ratio (2013) x Registries Rate			0.137***		
			(0.037)		
2nd quartile liquidity ratio (2013) x Registries Rate				-0.069***	
				(0.024)	
3rd quartile liquidity ratio (2013) x Registries Rate				-0.105***	
				(0.027)	
4th quartile liquidity ratio (2013) x Registries Rate				-0.125***	
				(0.034)	
2nd quartile sales per worker (2013) x Registries Rate					-0.152***
					(0.029)
3rd quartile sales per worker (2013) x Registries Rate					-0.183***
					(0.036)
4th quartile sales per worker (2013) x Registries Rate					-0.225***
					(0.047)
Firm FE	✓	✓	✓	✓	✓
City-year FE	✓	✓	✓	✓	✓
Observations	197,685	196,502	196,502	195,740	196,530
First-stage F-stage	53.04	16.01	13.99	13.98	15.45
Mean Registries Rate	0.072	0.072	0.072	0.072	0.072

Note: This table reports robustness exercises on the heterogeneous two-stage least squares estimates of the effect of exposure to short-term rentals on the probability of firm closure, based on 2013 financial performance indicators, and restricting to the municipality of Lisbon. Column (1) presents the baseline estimation on probability of exit. In column (2), we interact the registry rate with an indicator for the firm's quartile in the return-on-assets distribution. In column (3), we interact the registry rate with an indicator for the firm's quartile in the indebtedness ratio distribution. In column (4), we use the liquidity ratio distribution, and in column (5), the sales-per-worker distribution. All regressions include firm fixed effect, city-year fixed effect. Standard errors are clustered by civil parish. *** p<0.01, ** p<0.05, * p<0.1

Table A8: Effect on probability of exit - robustness: restricting touristic attractions - 2SLS

	Pr exit	Pr exit	Pr exit	Pr exit	Pr exit
Registries Rate	0.015**	0.102***	-0.039***	0.087***	0.191***
	(0.004)	(0.022)	(0.013)	(0.021)	(0.035)
2nd quartile ROA (2013) x Registries Rate		-0.089***			
		(0.020)			
3rd quartile ROA (2013) x Registries Rate		-0.139***			
		(0.034)			
4th quartile ROA (2013) x Registries Rate		-0.131***			
		(0.029)			
2nd quartile Indebtedness ratio (2013) x Registries Rate			0.006		
			(0.006)		
3rd quartile Indebtedness ratio (2013) x Registries Rate			0.049***		
			(0.015)		
4th quartile Indebtedness ratio (2013) x Registries Rate			0.148***		
			(0.036)		
2nd quartile liquidity ratio (2013) x Registries Rate				-0.075***	
				(0.022)	
3rd quartile liquidity ratio (2013) x Registries Rate				-0.113***	
				(0.027)	
4th quartile liquidity ratio (2013) x Registries Rate				-0.139***	
				(0.034)	
2nd quartile sales per worker (2013) x Registries Rate					-0.170***
					(0.034)
3rd quartile sales per worker (2013) x Registries Rate					-0.209***
					(0.043)
4th quartile sales per worker (2013) x Registries Rate					-0.249***
					(0.051)
Firm FE	✓	✓	✓	✓	✓
City-year FE	✓	✓	✓	✓	✓
Observations	276,060	274,864	274,864	273,879	274,892
First-stage F-stage	92.60	21.26	22.53	23.53	21.02
Mean Registries Rate	0.065	0.065	0.065	0.065	0.065

Note: This table reports robustness exercises on the heterogeneous two-stage least squares estimates of the effect of exposure to short-term rentals on the probability of firm closure, based on 2013 financial performance indicators, and constructing an instrument using only touristic attraction with more than 5000 reviews. Column (1) presents the baseline estimation on probability of exit. In column (2), we interact the registry rate with an indicator for the firm's quartile in the return-on-assets distribution. In column (3), we interact the registry rate with an indicator for the firm's quartile in the indebtedness ratio distribution. In column (4), we use the liquidity ratio distribution, and in column (5), the sales-per-worker distribution. All regressions include firm fixed effect, city-year fixed effect. Standard errors are clustered by civil parish. *** p<0.01, ** p<0.05, * p<0.1

Robustness - Performance of incumbent firms

Table A9: Effect on incumbent firms - performance - robustness - alternative measure - 2SLS

	Log Sales	Inv.hyp.sine EBT	Log Employees	Wages per worker	Log Tangible Assets	Log Total Tax
			Panel A: All firms			
Share airbnb sales	0.129**	1.860***	0.014	149.3	-0.010	0.550***
	(0.053)	(0.315)	(0.041)	(395.5)	(0.127)	(0.117)
Observations	265,994	276,060	262,753	276,060	230,631	254,369
First-stage F-statistic	77.60	78.18	76.40	78.18	76.86	78.30
Mean share airbnb sales	0.227	0.229	0.228	0.229	0.225	0.227
			Panel B: Restaurants			
Share airbnb sales	0.486***	2.877**	0.268***	1109.9***	0.711***	0.843***
	(0.070)	(1.176)	(0.061)	(264.4)	(0.154)	(0.153)
Observations	36,473	37,590	36,263	37,590	32,733	33,733
First-stage F-statistic	57.14	58.74	57.40	58.74	60.28	60.05
Mean share airbnb sales	0.277	0.279	0.278	0.279	0.278	0.279
			Panel C: Hotels			
Mean share airbnb sales	0.154	-5.939**	0.244	3958.7	0.143	0.134
	(0.193)	(2.466)	(0.168)	(2553.8)	(0.349)	(0.412)
Observations	3,485	3,632	3,450	3,632	3,360	3,389
First-stage F-statistic	85.35	85.12	77.84	85.12	84.06	75.21
Mean share airbnb sales	0.430	0.430	0.432	0.430	0.428	0.437
			Panel D: Food retailers			
Share airbnb sales	0.466***	-1.870	0.278**	2172.9**	0.189	0.094
	(0.160)	(1.411)	(0.098)	(1006.2)	(0.387)	(0.269)
Observations	8,753	9,017	8,646	9,017	7,177	8,232
First-stage F-statistic	29.09	30.29	29.70	30.29	21.07	28.07
Mean share airbnb sales	0.231	0.234	0.232	0.234	0.236	0.232
Firm FE	✓	✓	✓	✓	✓	✓
City-year FE	✓	✓	✓	✓	✓	✓

Note: This table reports robustness exercises on the two-stage least square results on firm performance indicators for the overall sample of incumbent firms (Panel A), for restaurants (Panel B), for hotels (Panel C) and food retailers (Panel D). In column (1) the outcome variable is logarithm of sales, in column (2) is the inverse hyperbolic sine of Earnings before Taxes (EBT), in column (3) is the logarithm of Full-time equivalent (FTE) employees, in column (4) is the wage bill divided by the number of FTE employees, in column (5) is the logarithm of tangible assets and in column (6) is the logarithm of total taxes paid (consumption + corporate income taxes). We winsorize the 1st and 99th percentile of all outcome measures, prior to the transformations. We use an alternative measure of exposure to short-term rentals, constructed by identifying firms that provide temporary accommodation services in our dataset based on their full industry codes, calculating total sales per parish and year, and expressing this as a share of total industry sales at the municipality level. All regressions include firm fixed effect, city-year fixed effect. Standard errors are clustered by civil parish. *** p<0.01, ** p<0.05, * p<0.1

Table A10: Effect on incumbent firms - mechanisms - robustness - alternative measure - 2SLS

	Log Total Expenses	Log Wage Bill	Log Production costs	Log Rent	Log SR Liabilities	Log LR Liabilities
			Panel A: All firms			
Share airbnb sales	0.078	0.032	0.068	0.387***	0.127	0.312***
	(0.061)	(0.064)	(0.058)	(0.108)	(0.076)	(0.069)
Observations	273,253	262,151	272,515	192,410	283,006	153,229
First-stage F-statistic	78.22	75.71	78.27	87.43	77.97	84.21
Mean share airbnb sales	0.228	0.227	0.228	0.246	0.228	0.239
			Panel B: Restaurants			
Share airbnb sales	0.461***	0.385***	0.432***	0.493***	0.255	0.132
	(0.090)	(0.083)	(0.074)	(0.103)	(0.162)	(0.169)
Observations	37,128	36,258	37,017	31,175	37,122	20,253
First-stage F-statistic	58.43	56.74	58.12	57.09	57.93	54.32
Mean share airbnb sales	0.279	0.278	0.279	0.283	0.278	0.296
			Panel C: Hotels			
Share airbnb sales	0.531	0.033	0.584	1.051	0.837**	0.392
	(0.399)	(0.259)	(0.372)	(0.626)	(0.317)	(0.545)
Observations	3,613	3,449	3,609	2,948	3,586	2,299
First-stage F-statistic	89.09	71.61	86.57	53.27	79.68	237.8
Mean share airbnb sales	0.431	0.432	0.431	0.443	0.429	0.444
			Panel D: Food retailers			
Share airbnb sales	0.445***	0.459**	0.464***	0.697***	0.485*	0.229
	(0.160)	(0.169)	(0.166)	(0.132)	(0.239)	(0.238)
Observations	8,921	8,610	8,893	7,192	8,874	4,769
First-stage F-statistic	29.78	29.52	29.87	19.01	31.22	32.82
Mean share airbnb sales	0.232	0.232	0.232	0.238	0.234	0.254
Firm FE	✓	✓	✓	✓	✓	✓
City-year FE	✓	✓	✓	✓	✓	✓

Note: This table reports robustness exercises on the two-stage least square results on firm's expenses and liabilities indicators for the overall sample of incumbent firms (Panel A), for restaurants (Panel B), for hotels (Panel C) and food retailers (Panel D). In column (1) the outcome variable is logarithm of total expense, in column (2) is logarithm of the wage bill, in column (3) is the logarithm of Production Costs (costs of goods sold + costs of external supplies), in column (4) is the logarithm of rent reported by firms, in column (5) is the logarithm of short-run liabilities and in column (6) is the logarithm of long-run liabilities. We winsorize the 1st and 99th percentile of all outcome measures, prior to the transformations. We use an alternative measure of exposure to short-term rentals, constructed by identifying firms that provide temporary accommodation services in our dataset based on their full industry codes, calculating total sales per parish and year, and expressing this as a share of total industry sales at the municipality level. All regressions include firm fixed effect, city-year fixed effect. Standard errors are clustered by civil parish. *** p<0.01, ** p<0.05, * p<0.1

Table A11: Effect on incumbent firms - performance - robustness - additional FE - 2SLS

	Log Sales	Inv.hyp.sine EBT	Log Employees	Wages per worker	Log Tangible Assets	Log Total Tax
Panel A: All firms						
Registries rate	0.107**	1.537***	0.012	130.8	-0.008	0.456***
	(0.050)	(0.331)	(0.035)	(332.7)	(0.104)	(0.087)
Observations	265,991	276,058	262,750	276,058	230,631	254,367
First-stage F-statistic	59.28	58.48	59.17	58.48	58.65	58.39
Mean Registries Rate	0.063	0.065	0.063	0.065	0.059	0.063
Panel B: Restaurants						
Registries rate	0.413***	2.459	0.226***	948.5***	0.605***	0.721***
	(0.108)	(1.552)	(0.071)	(252.9)	(0.120)	(0.223)
Observations	36,473	37,590	36,263	37,590	32,733	33,733
First-stage F-statistic	50.39	49.62	49.50	49.62	50.47	48.58
Mean Registries Rate	0.087	0.089	0.087	0.089	0.082	0.088
Panel C: Hotels						
Registries rate	0.125	-4.874*	0.201	3248.9**	0.121	0.116
	(0.156)	(2.421)	(0.147)	(1402.9)	(0.293)	(0.338)
Observations	3,485	3,632	3,450	3,632	3,360	3,389
First-stage F-statistic	22.35	22.41	22.74	22.41	23.51	20.99
Mean Registries Rate	0.100	0.103	0.102	0.103	0.102	0.105
Panel D: Food retailers						
Registries rate	0.384***	-1.553	0.231*	1804.6***	0.150	0.078
	(0.119)	(1.232)	(0.118)	(644.2)	(0.316)	(0.214)
Observations	8,753	9,017	8,646	9,017	7,177	8,232
First-stage F-statistic	54.06	52.89	54.47	52.89	55.17	52.58
Mean Registries Rate	0.068	0.071	0.068	0.071	0.061	0.069
Firm FE	✓	✓	✓	✓	✓	✓
City-year FE	✓	✓	✓	✓	✓	✓
Industry time trends	✓	✓	✓	✓	✓	✓

Note: This table reports robustness exercises on the two-stage least square results on firm performance indicators for the overall sample of incumbent firms (Panel A), for restaurants (Panel B), for hotels (Panel C) and food retailers (Panel D). In column (1) the outcome variable is logarithm of sales, in column (2) is the inverse hyperbolic sine of Earnings before Taxes (EBT), in column (3) is the logarithm of Full-time equivalent (FTE) employees, in column (4) is the wage bill divided by the number of FTE employees, in column (5) is the logarithm of tangible assets and in column (6) is the logarithm of total taxes paid (consumption + corporate income taxes). We winsorize the 1st and 99th percentile of all outcome measures, prior to the transformations. All regressions include firm fixed effect, city-year fixed effect, industry time trends. Standard errors are clustered by civil parish. *** p<0.01, ** p<0.05, * p<0.1

Table A12: Effect on incumbent firms - mechanisms - robustness - additional FE - 2SLS

	Log Total Expenses	Log Wage Bill	Log Production costs	Log Rent	Log SR Liabilities	Log LR Liabilities
			Panel A: All firms			
Registries rate	0.066	0.027	0.057	0.319***	0.101**	0.252***
	(0.046)	(0.053)	(0.046)	(0.060)	(0.045)	(0.064)
Observations	273,251	262,148	272,512	192,410	272,326	153,229
First-stage F-statistic	58.83	59.59	58.76	54.50	58.52	51.74
Mean Registries Rate	0.064	0.063	0.064	0.067	0.064	0.071
			Panel B: Restaurants			
Registries rate	0.394***	0.325***	0.368***	0.414***	0.217**	0.105
	(0.089)	(0.086)	(0.087)	(0.070)	(0.101)	(0.126)
Observations	37,128	36,258	37,017	31,175	37,122	20,253
First-stage F-statistic	49.70	49.92	49.78	48.77	49.47	43.99
Mean Registries Rate	0.088	0.087	0.088	0.089	0.089	0.100
			Panel C: Hotels			
Registries rate	0.442*	0.026	0.485**	0.833***	0.656*	0.325
	(0.222)	(0.205)	(0.209)	(0.297)	(0.334)	(0.465)
Observations	3,613	3,449	3,609	2,948	3,586	2,299
First-stage F-statistic	22.16	22.10	22.08	22.52	22.67	20.24
Mean Registries Rate	0.102	0.102	0.102	0.103	0.100	0.117
			Panel D: Food retailers			
Registries rate	0.369***	0.383**	0.385***	0.576***	0.406**	0.193
	(0.117)	(0.170)	(0.119)	(0.158)	(0.184)	(0.214)
Observations	8,921	8,610	8,893	7,192	8,874	4,769
First-stage F-statistic	53.44	54.58	53.43	54.93	53.52	41.36
Mean Registries Rate	0.070	0.068	0.069	0.070	0.071	0.071
Firm FE	✓	✓	✓	✓	✓	✓
City-year FE	✓	✓	✓	✓	✓	✓
Industry time trends	✓	✓	✓	✓	✓	✓

Note: This table reports robustness exercises on the two-stage least square results on firm's expenses and liabilities indicators for the overall sample of incumbent firms (Panel A), for restaurants (Panel B), for hotels (Panel C) and food retailers (Panel D). In column (1) the outcome variable is logarithm of total expense, in column (2) is logarithm of the wage bill, in column (3) is the logarithm of Production Costs (costs of goods sold + costs of external supplies), in column (4) is the logarithm of rent reported by firms, in column (5) is the logarithm of short-run liabilities and in column (6) is the logarithm of long-run liabilities. We winsorize the 1st and 99th percentile of all outcome measures, prior to the transformations. All regressions include firm fixed effect, city-year fixed effect and industry time trends. Standard errors are clustered by civil parish. *** p<0.01, ** p<0.05, * p<0.1

Table A13: Effect on incumbent firms - robustness - balanced sample - 2SLS

	Log Sales	Inv.hyp.sine EBT	Log Employees	Wages per worker	Log Tangible Assets	Log Total Tax
Registries rate	0.165***	1.695***	0.030	255.6	-0.015	0.526***
	(0.055)	(0.434)	(0.038)	(340.9)	(0.109)	(0.087)
Observations	188,344	193,373	185,894	193,373	167,148	181,369
First-stage F-statistic	57.15	56.20	57.14	56.20	58.01	56.63
Mean Registries Rate	0.068	0.070	0.068	0.070	0.063	0.068
	Log Total Expenses	Log Wage Bill	Log Production costs	Log Rent	Log SR Liabilities	Log LR Liabilities
Registries rate	0.100**	0.054	0.102**	0.385***	0.111**	0.271***
	(0.039)	(0.053)	(0.043)	(0.059)	(0.041)	(0.073)
Observations	192,177	185,676	191,893	137,760	191,636	109,226
First-stage F-statistic	56.60	57.34	56.60	52.63	56.48	49.43
Mean Registries Rate	0.069	0.068	0.069	0.072	0.069	0.070
Firm FE	✓	✓	✓	✓	✓	✓
City-year FE	✓	✓	✓	✓	✓	✓

Note: This table reports robustness exercises on the two-stage least square results on firm's performance, expenses and liabilities indicators by considering only incumbent firms that remained in the sample all years between 2008-2019. We winsorize the 1st and 99th percentile of all outcome measures, prior to the transformations. All regressions include firm fixed effect, city-year fixed effect. Standard errors are clustered by civil parish. *** p<0.01, ** p<0.05, * p<0.1

Table A14: Effect on incumbent firms - robustness - Lisbon - 2SLS

	Log Sales	Inv.hyp.sine EBT	Log Employees	Wages per worker	Log Tangible Assets	Log Total Tax
Registries rate	0.147***	1.600***	0.039	311.1	0.047	0.462***
	(0.043)	(0.349)	(0.030)	(323.3)	(0.101)	(0.095)
Observations	190,331	197,685	187,887	197,685	163,642	182,128
First-stage F-statistic	53.74	53.04	53.65	53.04	53.20	52.99
Mean Registries Rate	0.070	0.072	0.070	0.072	0.066	0.070
	Log Total Expenses	Log Wage Bill	Log Production costs	Log Rent	Log SR Liabilities	Log LR Liabilities
Registries rate	0.096*	0.067	0.089*	0.348***	0.127**	0.248***
	(0.048)	(0.049)	(0.045)	(0.064)	(0.054)	(0.068)
Observations	195,698	187,752	195,178	136,034	194,940	105,202
First-stage F-statistic	53.32	54.04	53.23	48.94	53.03	46.95
Mean Registries Rate	0.071	0.069	0.071	0.075	0.071	0.080
Firm FE	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓

Note: This table reports robustness exercises on the two-stage least square results on firm's performance, expenses and liabilities indicators by considering only Lisbon. We winsorize the 1st and 99th percentile of all outcome measures, prior to the transformations. All regressions include firm fixed effect, year fixed effect. Standard errors are clustered by civil parish. *** p<0.01, ** p<0.05, * p<0.1

Table A15: Effect on incumbent firms - robustness - Outcomes in Levels - 2SLS

	Sales	EBT	Employees	Wages per worker	Tangible Assets	Total Tax
Registries rate	51311.1**	13224.5**	0.286**	123.2	5680.6	2717.5***
	(24691.3)	(5579.5)	(0.131)	(328.1)	(9693.8)	(809.0)
Observations	276,060	276,060	276,060	276,060	276,060	276,060
First-stage F-statistic	58.35	58.35	58.35	58.35	58.35	58.35
Mean Registries Rate	0.065	0.065	0.065	0.065	0.065	0.065
	Total Expenses	Wage Bill	Production costs	Rent	SR Liabilities	LR Liabilities
Registries rate	46174.6**	7662.8**	26340.6	4372.6***	18901.3	29470.5*
	(22122.3)	(2976.8)	(15838.3)	(995.3)	(13353.4)	(15485.0)
Observations	276,060	276,060	276,060	206,048	276,060	276,060
First-stage F-statistic	58.35	58.35	58.35	56.02	58.35	58.35
Mean Registries Rate	0.065	0.065	0.065	0.066	0.065	0.065
Firm FE	✓	✓	✓	✓	✓	✓
City-year FE	✓	✓	✓	✓	✓	✓

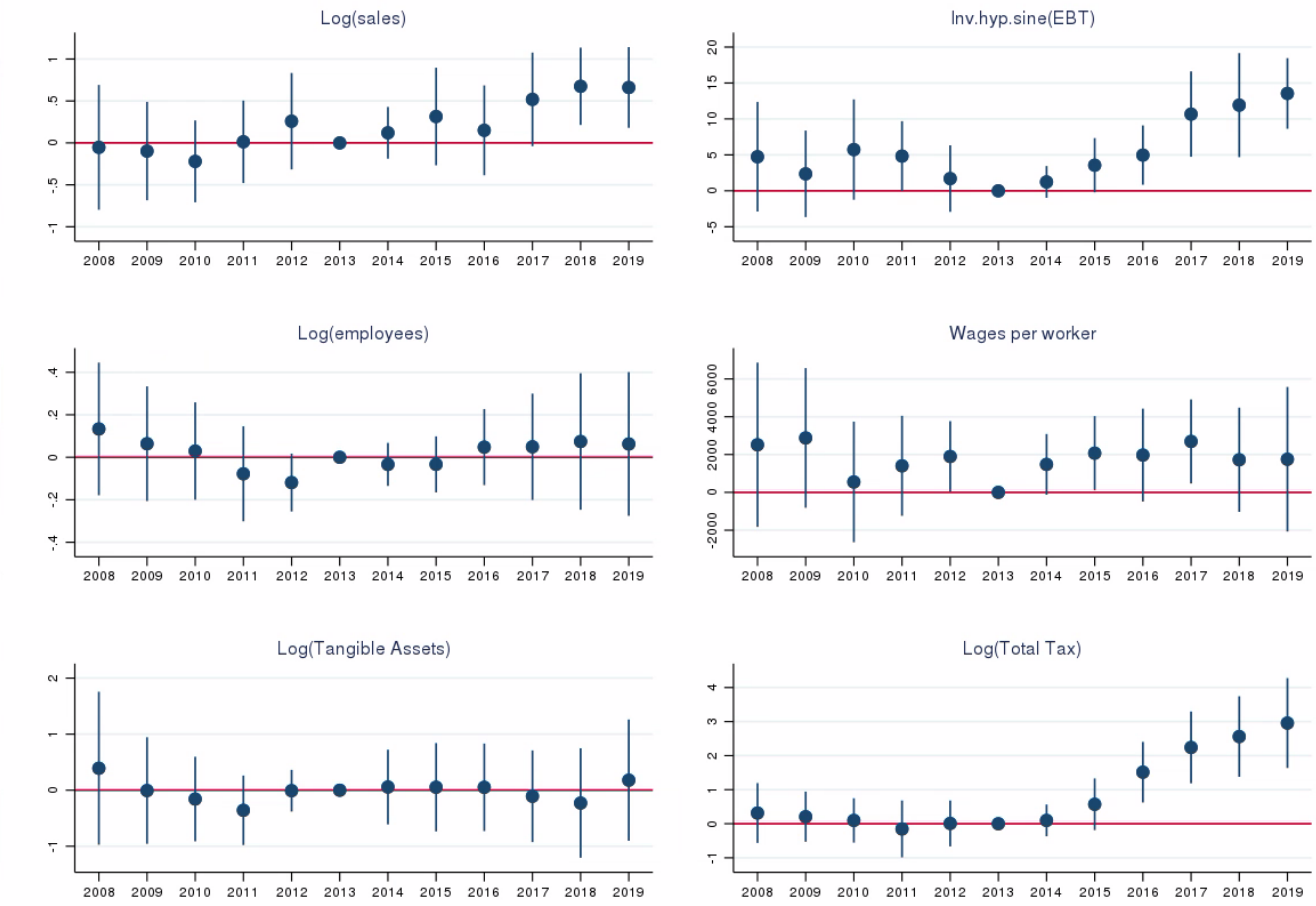
Note: This table reports robustness exercises on the two-stage least square results on firm's performance, expenses and liabilities indicators by considering the outcome variables rather than as logarithm transformation. We winsorize the 1st and 99th percentile of all outcome measures. All regressions include firm fixed effect, city-year fixed effect. Standard errors are clustered by civil parish. *** p<0.01, ** p<0.05, * p<0.1

Table A16: Effect on incumbent firms - robustness - restricting touristic attractions - 2SLS

	Log Sales	Inv.hyp.sine EBT	Log Employees	Wages per worker	Log Tangible Assets	Log Total Tax
Registries rate	0.112**	1.399***	0.009	122.2	0.016	0.451***
	(0.053)	(0.394)	(0.037)	(337.5)	(0.106)	(0.098)
Observations	265,994	276,060	262,753	276,060	230,631	254,369
First-stage F-statistic	93.26	92.60	93.10	92.60	88.54	90.92
Mean Registries Rate	0.063	0.065	0.063	0.065	0.059	0.063
	Log Total Expenses	Log Wage Bill	Log Production costs	Log Rent	Log SR Liabilities	Log LR Liabilities
Registries rate	0.063	0.024	0.056	0.330***	0.124**	0.239***
	(0.048)	(0.056)	(0.049)	(0.065)	(0.046)	(0.068)
Observations	273,253	262,151	272,515	192,410	272,328	153,229
First-stage F-statistic	93.20	93.48	93.06	95.10	92.39	77.85
Mean Registries Rate	0.064	0.063	0.064	0.067	0.064	0.071
Firm FE	✓	✓	✓	✓	✓	✓
City-year FE	✓	✓	✓	✓	✓	✓

Note: This table reports robustness exercises on the two-stage least square results on firm's performance, expenses and liabilities indicators by constructing an instrument using only touristic transactions with more than 5000 reviews. We winsorize the 1st and 99th percentile of all outcome measures, prior to the transformations. All regressions include firm fixed effect, city-year fixed effect. Standard errors are clustered by civil parish. *** p<0.01, ** p<0.05, * p<0.1

Figure A2: Event-study: Performance Incumbents - restricting touristic attractions in the IV



Note: These graphs display the estimations for the Event-study as described in equation 4. The instrument is constructed using only the touristic attractions with more than 5000 reviews. The outcome variables are the same as used in Table 3 and we considering the entire sample of incumbent firms. The regressions includes firm fixed effect, city-year fixed effect. Standard errors are clustered by civil parish. The bars denote the 95% confidence interval.

Robustness - Entry

Table A17: Effect on number new firms - robustness - 2SLS

	Inv.hyp.sine New firms	Inv.hyp.sine New restaurants	Inv.hyp.sine New Hotels	Inv.hyp.sine New Food retailers
Share airbnb sales	0.495	1.897***	1.664***	0.891**
	(0.357)	(0.436)	(0.162)	(0.379)
Observations	348	348	348	348
First-stage F-statistic	36.91	36.91	36.91	36.91
Mean share airbnb sales	0.147	0.147	0.147	0.147
City-year FE	✓	✓	✓	✓

Note: This table presents robustness exercises on the results of exposure of short-term rentals on the number of new firms. In column (1) we use as outcome the number of new firms per parish and year, in column (2) the number of new restaurants, in column (3) the number of new hotels and in column (4) the number of new food retailers. We use an alternative measure of exposure to short-term rentals, constructed by identifying firms that provide temporary accommodation services in our dataset based on their full industry codes, calculating total sales per parish and year, and expressing this as a share of total industry sales at the municipality level. All regressions include city-year fixed effect. Standard errors are clustered by civil parish. *** p<0.01, ** p<0.05, * p<0.1

Table A18: Effect on number new firms - robustness - just Lisbon - 2SLS

	Inv.hyp.sine New firms	Inv.hyp.sine New restaurants	Inv.hyp.sine New Hotels	Inv.hyp.sine New Food retailers
Registries Rate	0.474	2.179***	1.774***	0.891
	(0.493)	(0.596)	(0.371)	(0.622)
Observations	264	264	264	264
First-stage F-statistic	67.75	67.75	67.75	67.75
Mean registries rate	0.070	0.070	0.070	0.070
City-year FE	✓	✓	✓	✓

Note: This table presents robustness exercises on the results of exposure of short-term rentals on the number of new firms, by restricting to the municipality of Lisbon. In column (1) we use as outcome the number of new firms per parish and year, in column (2) the number of new restaurants, in column (3) the number of new hotels and in column (4) the number of new food retailers. All regressions include city-year fixed effect. Standard errors are clustered by civil parish. *** p<0.01, ** p<0.05, * p<0.1

Table A19: Effect on number new firms - robustness - restricting touristic attractions - 2SLS

	Inv.hyp.sine New firms	Inv.hyp.sine New restaurants	Inv.hyp.sine New Hotels	Inv.hyp.sine New Food retailers
Registries Rate	0.192	2.096***	1.818***	0.695
	(0.656)	(0.754)	(0545)	(0.719)
Observations	348	348	348	348
First-stage F-statistic	60.99	60.99	60.99	60.99
Mean registries rate	0.060	0.060	0.060	0.060
City-year FE	✓	✓	✓	✓

Note: This table presents robustness exercises on the results of exposure of short-term rentals on the number of new firms, constructing a new instrument using only touristic attractions with more than 5000 reviews. In column (1) we use as outcome the number of new firms per parish and year, in column (2) the number of new restaurants, in column (3) the number of new hotels and in column (4) the number of new food retailers. All regressions include city-year fixed effect. Standard errors are clustered by civil parish. *** p<0.01, ** p<0.05, * p<0.1

Table A20: Effect on entry firms - first year in the sample - performance - robustness - 2SLS

	Log Sales	Inv.hyp.sine EBT	Log Employees	Wages per worker	Log Tangible Assets	Log Total Tax
Share airbnb sales	0.119	-1.199***	0.208**	201.1	0.156*	0.108
	(0.112)	(0.332)	(0.079)	(627.3)	(0.091)	(0.171)
Observations	51,783	51,783	51,459	51,783	41,705	47,824
First-stage F-stat	23.46	23.46	23.49	23.46	21.06	22.74
Mean share airbnb sales	0.208	0.208	0.208	0.208	0.202	0.206
	Log Total Expenses	Log Wage Bill	Log Production costs	Log Rent	Log SR Liabilities	Log LR Liabilities
Share airbnb sales	0.230*	0.174*	0.235*	0.439***	0.398**	0.259*
	(0.113)	(0.094)	(0.127)	(0.149)	(0.153)	(0.132)
Observations	51,783	51,783	51,741	36,161	51,359	19,120
First-stage F-stat	23.46	23.46	23.45	22.47	23.34	20.31
Mean share airbnb sales	0.208	0.208	0.208	0.219	0.208	0.232
City-year FE	✓	✓	✓	✓	✓	✓
Industry time trends	✓	✓	✓	✓	✓	✓

Note: This table reports robustness exercise on the two-stage least square results on conditions of firm entry. As outcomes we consider the same variables as in Tables 3 and 4, but we consider only the first year a firm is the sample. We winsorize the 1st and 99th percentile of all outcome measures, prior to the transformations. We use an alternative measure of exposure to short-term rentals, constructed by identifying firms that provide temporary accommodation services in our dataset based on their full industry codes, calculating total sales per parish and year, and expressing this as a share of total industry sales at the municipality level. All regressions include city-year fixed effect and industry time trends. Standard errors are clustered by civil parish. *** p<0.01, ** p<0.05, * p<0.1

Table A21: Effect on entry firms - first year in the sample - performance - robustness - just Lisbon - 2SLS

	Log Sales	Inv.hyp.sine EBT	Log Employees	Wages per worker	Log Tangible Assets	Log Total Tax
Registries Rate	0.260*	-1.442***	0.307**	928.6	0.1328***	0.338
	(0.148)	(0.432)	(0.113)	(838.9)	(0.115)	(0.214)
Observations	36,904	36,904	36,679	36,904	29,322	34,108
First-stage F-stat	51.44	51.44	51.43	51.44	54.54	49.95
Mean registries rate	0.039	0.039	0.039	0.039	0.027	0.037
	Log Total Expenses	Log Wage Bill	Log Production costs	Log Rent	Log SR Liabilities	Log LR Liabilities
Registries Rate	0.413***	0.295**	0.436**	0.758***	0.711***	0.509***
	(0.142)	(0.129)	(0.154)	(0.155)	(0.164)	(0.165)
Observations	36,904	36,904	36,874	25,568	36,599	12,490
First-stage F-stat	51.44	51.44	51.35	50.29	51.29	53.03
Mean registries rate	0.039	0.039	0.039	0.034	0.039	0.057
City-year FE	✓	✓	✓	✓	✓	✓
Industry time trends	✓	✓	✓	✓	✓	✓

Note: This table reports robustness exercise on the two-stage least square results on conditions of firm entry, by constructing an instrument using only touristic attractions with more than 5000 reviews. As outcomes we consider the same variables as in Tables 3 and 4, but we consider only the first year a firm is the sample. We winsorize the 1st and 99th percentile of all outcome measures, prior to the transformations. All regressions include city-year fixed effect and industry time trends. Standard errors are clustered by civil parish. *** p<0.01, ** p<0.05, * p<0.1

Table A22: Effect on entry firms - first year in the sample - performance - robustness - restricting touristic attractions - 2SLS

	Log Sales	Inv.hyp.sine EBT	Log Employees	Wages per worker	Log Tangible Assets	Log Total Tax
Registries Rate	0.080	-1.506***	0.214	-351.1	0.181	0.050
	(0.197)	(0.472)	(0.128)	(1210.5)	(0.152)	(0.280)
Observations	51,783	51,783	51,459	51,783	41,705	47,824
First-stage F-stat	78.95	78.95	78.95	78.95	76.26	76.26
Mean registries rate	0.035	0.035	0.035	0.035	0.025	0.033
	Log Total Expenses	Log Wage Bill	Log Production costs	Log Rent	Log SR Liabilities	Log LR Liabilities
Registries Rate	0.218	0.131	0.260	0.553***	0.390	0.199
	(0.199)	(0.174)	(0.191)	(0.193)	(0.282)	(0.263)
Observations	51,783	51,783	51,741	36,161	51,359	19,120
First-stage F-stat	78.95	78.95	78.79	84.84	78.58	71.30
Mean registries rate	0.035	0.035	0.035	0.031	0.035	0.050
City-year FE	✓	✓	✓	✓	✓	✓
Industry time trends	✓	✓	✓	✓	✓	✓

Note: This table reports robustness exercise on the two-stage least square results on conditions of firm entry, by constructing an instrument using only touristic attractions with more than 5000 reviews. As outcomes we consider the same variables as in Tables 3 and 4, but we consider only the first year a firm is the sample. We winsorize the 1st and 99th percentile of all outcome measures, prior to the transformations. All regressions include city-year fixed effect and industry time trends. Standard errors are clustered by civil parish. *** p<0.01, ** p<0.05, * p<0.1