ARCHIVIO ISTITUZIONALE
DELLA RICERCA

Alma Mater Studiorum Università di Bologna
Archivio istituzionale della ricerca

Beyond numbers: rethinking host professionalism on Airbnb

This is the final peer-reviewed author's accepted manuscript (postprint) of the following publication:

Published Version:
Leoni, V., Pattitoni, P., Vici, L. (2024). Beyond numbers: rethinking host professionalism on Airbnb. JOURNAL OF ECONOMIC STUDIES, 51(7), 1507-1513 [10.1108/JES-09-2023-0512].

Availability:
This version is available at: https://hdl.handle.net/11585/996972 since: 2024-11-20

Published:
DOI: http://doi.org/10.1108/JES-09-2023-0512

Terms of use:

Some rights reserved. The terms and conditions for the reuse of this version of the manuscript are specified in the publishing policy. For all terms of use and more information see the publisher's website.

This item was downloaded from IRIS Università di Bologna (https://cris.unibo.it/).
When citing, please refer to the published version.

(Article begins on next page)

31 December 2024

Beyond Numbers: Rethinking Host Professionalism on Airbnb

Abstract

Purpose - We challenge the conventional approach to distinguish between professional and non-professional Airbnb hosts by solely using the number of managed listings.

Design/methodology/approach - We leverage the recently released platform policy that categorizes hosts' professionalism by their self-declared status. Our multinomial modeling approach predicts true host status, factoring in the number of managed listings and controlling for listing and host traits. We employ data from five major European cities collected through scraping the Airbnb webpage.

Findings - Our research reveals that relying solely on the number of listings managed falls short of accurately predicting the host type, leading to difficulties in evaluating the platform's impact on the local housing market and reducing the effectiveness of policy intervention. Moreover, we advocate using more fine-grained measures to differentiate further between semi-professional and professional hosts who exhibit heterogeneous economic behaviors.

Research Implications - Reliable professionalism metrics are essential to curb unethical practices, promote market transparency, and ensure a level playing field for all market participants.

Originality/value - This work pioneers the revelation of the inadequacy of a commonly used measure for predicting host professionalism accurately.

Keywords: Professionalism; Hosting; Airbnb; P2P platforms

1 Introduction

Airbnb is a prime example of a peer-to-peer (p2p) platform that allows individuals to rent out their spare space, including rooms or apartments, to short-term residents. Though originally intended for non-professional users, its increasing professionalization has raised concerns about its impact on related markets. This shift has negatively affected existing businesses, particularly those in the traditional accommodation sector (Farronato and Fradkin, 2022; Zervas et al., 2017), and the affordability of the residential housing market (Barron et al., 2021; Horn and Merante, 2017; Chen et al., 2022; Li et al., 2022; Chen et al., 2023). As a result, several cities have implemented regulatory approaches to address these issues. However, the effectiveness of these regulations is still debated (Garz and Schneider, 2023).

Effectively regulating p2p markets requires a profound understanding of the agents operating within them. These agents' professionalism level can affect costs imposed on the territory, such as conversion rate from long to short-term rentals, buy-to-let habits, and competition with traditional industries. Addressing these negative externalities requires different policy interventions.

Previous research distinguishes between professional and non-professional hosts based on the number of listings they manage (Table A1). However, we question the ability of this metric to proxy professionalism and, in turn, the derived policy implications. Lately, Airbnb has improved transparency in the European Economic Area (EEA) by requiring hosts to self-declare as individuals or professionals. This label allows for a clearer understanding of the degree of professionalization of p2p markets. However, this provision is mandatory only in the EEA, while in unregulated markets, it is still necessary to identify the host's status.

The introduction of this new label offers us a unique opportunity to challenge the use of the number of listings as an indicator of professionalism. We can now compare predictions with reality and provide a more nuanced understanding of the market. Moreover, we anticipate that the binary classification between 'professionals' and 'non-professionals' adopted by the platform may not capture the potential heterogeneity among self-declared professionals.

Accurately understanding true professionalism is of crucial economic importance, helps regulate unethical practices, and ensures that consumers have the necessary information to make informed decisions (Mejia and Parker, 2021).

2 Data and Methods

2.1 Background of the study

In January 2023, Airbnb responded to EU consumer protection laws by instituting a classification system with two key categories: 'individual' and 'professional' hosts. According to Airbnb website, an individual host is someone who sporadically lists their property as a secondary pursuit. On the other hand, hosts categorize themselves as professionals if hosting represents their primary profession or main income source.[1] Notably, some hosts

[1]We acknowledge that there might be incentives for opportunistic behaviors and fake self-declaring. For instance, an individual could falsely declare as a professional for reasons like attracting customers,

identified as professionals,although earning a substantial income from hosting, might not be formally registered as companies. To address this diversity among self-declared professional hosts, we included a third category, 'semi-professional' hosts, to refine the classification further and capture unobserved heterogeneity.

The main difference between 'semi-professional' and 'professional' hosts is that the latter provides additional company-related information during registration, while semi-professionals do not. Hosts affiliated with a legitimate business can also disclose information (Business Name, Business Address, Email, Legal Representatives, Company Registration Number, VAT Number, and other details) to validate their professional status. This reassures guests that a registered company provides the services.[2]

It is important to note that there is no default category, and some hosts may not declare their status. However, hosts must provide the necessary information to accept bookings or receive compensation for their hosting activities. Therefore, hosts are incentivized to update their information promptly to comply with the new regulations.[3]

2.2 Data

Following the release of the policy, we collected a dataset of 1,184 Airbnb listings in Madrid, Rome, Paris, Lisbon, and Berlin using a web scraper. We gathered all available listings for each city using the platform's default filter of 15 pages per search. It is important to mention that we did not apply any selection criteria as we launched queries with a Protect ID. This approach somewhat reduces the selection bias in our dataset, ensuring that it represents what an average user would find when searching for accommodation.[4] These cities were selected due to their significance as political and commercial hubs and tourism destinations. Each record includes information on price, location, property characteristics, host experience, reviews, and the number of managed listings by the host [5]. Figure 1 (anonymized for privacy) shows the new binary classification system in compliance with EU consumer protection law to help guests understand the type of host (individual or professional) they are booking with. Hosts who claim to be professionals can also provide additional information indicating a commercial nature, such as a registered business name, VAT number, and registration number. So, we utilized self-declaration and additional host information to classify hosts into three categories: Individual, Semi-Professional, or Professional. Specifically, the Professional category includes hosts who self-declared as such and also reported commercial business information. We believe that our classification criteria for these groups reflect more accurately the true professionalism level among hosts.

Table 1 presents our set of listing and host characteristics.

---

higher pricing for premium services, or building trust. However, this can lead to unintended outcomes, such as inspections by local authorities (common in cities with hosting restrictions) and potential legal consequences.

[2]There is no specific minimum number of fields to be completed to be classified as a professional. Hosts who do not provide extra information are categorized as semi-professionals.

[3]In our dataset, only 21 hosts have an unassigned status.

[4]However, we know there might be unintentional discrepancies due to different query launches, such as users' history cookies, IP addresses, and devices used.

[5]The data and coding necessary for replication are available in the Online Supplementary Material.

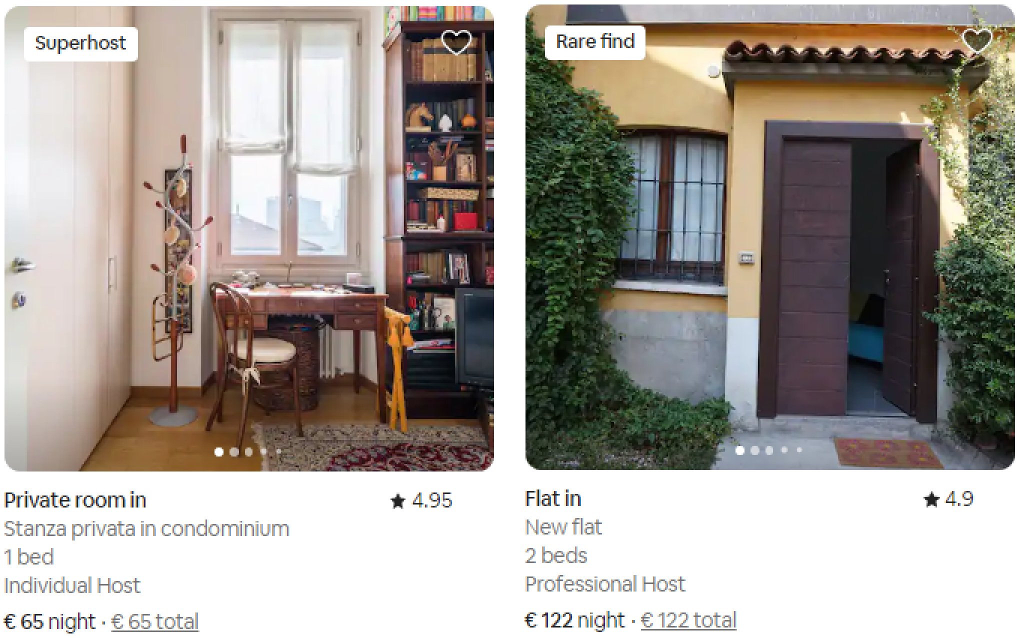

Figure 1: Professional vs Individual label on Airbnb
Source: Figure Retrieved from Airbnb website

Variable	Description	Mean	SD
`Professionalism`	Host's professional status		
`Individual`	=1 if Host is Individual	.783	.412
`SemiProf`	=1 if Host is Semi-Professional	.123	.329
`Professional`	=1 if Host is Professional	.094	.292
`ListCount`	Number of listings managed by a host	4.480	8.844
`Superhost`	=1 if Host has Super Host badge	0.551	
`Stars`	Number of stars (score rating)	4.791	.186
`Price`	Price per night (€)	122.180	57.947
`NumGuests`	Max number of guests allowed	3.239	1.342
`NumLangHost`	Number of foreign languages (host)	1.842	1.644
`HostRespTime`	Response time to booking requests		
`WithinAnHour`	=1 if host respond in an hour	0.823	
`Hours`	=1 if host respond within few hours	0.126	
`WithinADay`	=1 if host respond within the day	0.049	
`FewDays`	=1 if host respond in few days	0.002	
`HostRespRate`	Response rate to guests' queries (%)	98.110	5.880
`HostExpertise`	Number of years on the platforms	7.308	2.873
`NumReviews`	Number of reviews left by past guests	510.415	970.287

Table 1: Descriptive statistics
Source: Authors own creation

2.3 Methods and Results

Does the number of listings differentiate between individual and professional hosts?

Existing works used the number of listings to differentiate between individual and professional hosts, opting both for continuous measures (such as `ListCount`) and various thresholds, such as 2 or 10 listings (see Table A1)[6]. The underlying assumption is that managing more listings indicates higher professionalism. However, our analysis challenges this assumption. Indeed, professional hosts may manage fewer listings but target higher-end consumers.

According to Table 1, 78.3% of the listings belong to the category of individual hosts. Therefore, assuming that all hosts are individuals (naïve approach) would yield an accurate prediction about 80% of the time. The question is whether the existing proxies are good enough to improve over this level of prediction accuracy. To evaluate proxies' effectiveness in predicting professionalism, we conducted a Multinomial Probit analysis, which is suitable for categorical and non-ordinal data.

Table 2 presents the accuracy of the multinomial model's predictions under various specifications by comparing the predicted category based on the number of listings and their transformations against the three-level host category. The number of listings, or any of its transformations, does not improve predictions beyond the naïve approach that assumes all hosts are individuals. This finding holds even when additional covariates are included in the model and for both in-sample and out-of-sample testing. Even the most comprehensive model, including the number of listings and a set of controls, only leads to less than one percentage point improvement in prediction, compared to the naïve model, as shown in Table 2. We conduct out-of-sample testing on the most complete model using a 5-fold cross-validation approach. With the 5-fold cross-validation approach, data are divided into five equal-sized subsets. The model is trained on four subsets and tested on the remaining one. This process is repeated five times. The model's performance is then averaged across the five tests to estimate its prediction ability. As indicated in Column 2 of Table 2, the percentage of correctly predicted host categories is approximately the same as that of the naïve model (78.7%).

	Goodness of predictions %	
Model	In sample	Out of sample
Naïve model	78.29	
`ListCount` >2	78.29	
`ListCount` >10	78.29	
`ListCount`	79.05	
`ListCount` and controls	79.23	78.70

Table 2: Goodness of predictions
Source: Authors own creation

To deepen our analysis, we examine the marginal predictions of the most complete

[6] Column 4 of Table A1 displays the percentage of hosts classified as professional based on the adopted criteria. As seen, the numbers vary widely across groups, while for several studies, it is unreported.

model, including the number of listings and the control variables. Figure 2 shows that the number of listings is a reliable predictor of professionalism for the individual-professional-host divide for very low and high listings. However, this pattern does not hold for the two types of professional hosts, as they exhibit an almost overlapping trend pattern concerning the number of listings. Interestingly, the number of listings does its worst in predicting professionalism at around 28 listings, as it can indicate any host.

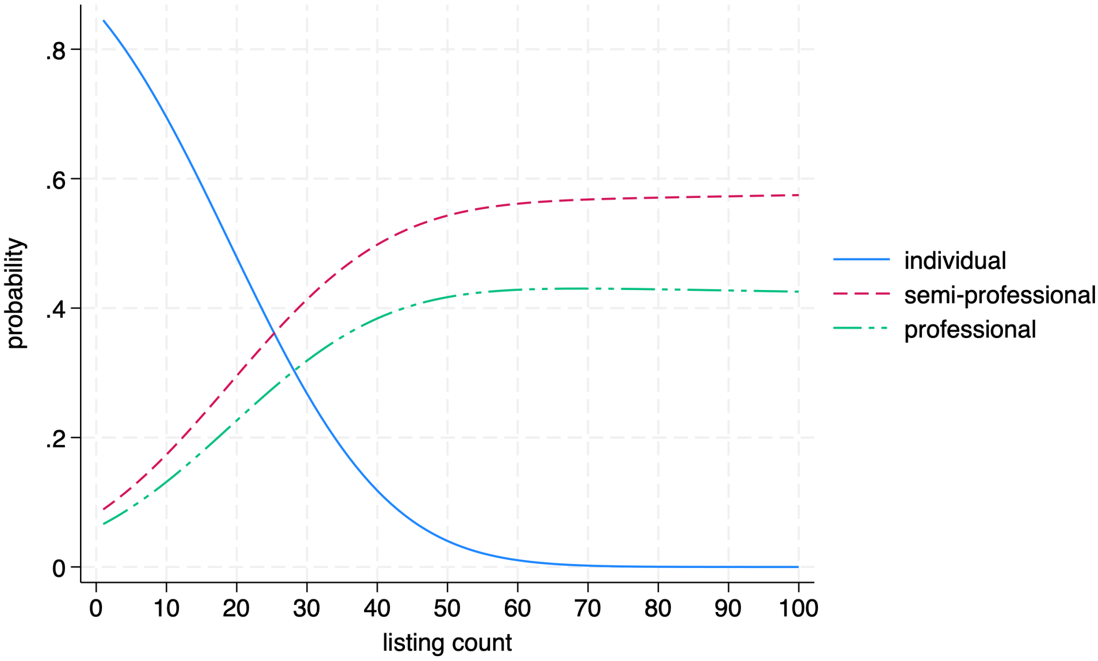

Figure 2: Predictive margins
Source: Authors own creation

Can semi-professional and professional hosts be grouped?

One might argue that a binary distinction between individual and professional hosts, based on the recently introduced label, is sufficient to understand the market dynamics. This assumption implies that professional hosts engaging in commercial activities (professionals) are similar to semi-professional hosts. To question this hypothesis, we reproduce two widely used regression models from the literature (Table A1) to analyze the relationship between price heterogeneity and professionalism and the relationship between the number of user-written reviews and professionalism. Our goal is not to infer any causal conclusions but rather to provide two examples, kept simple for clarity that show how the dynamics vary between semi-professional and professional hosts.

Table 3 presents a linear model replicating hedonic-like regressions and incorporating the control variables outlined in Table 1. Results reveal that professional hosts charge higher prices than individual hosts and semi-professionals (equality tests at the bottom of the table). As shown in Figure 2 and descriptive statistics, despite setting higher prices, professionals manage, on average, a lower number of listings than semi-professional (unreported statistics show that semi-professional hosts manage about 18% more listings than professionals). This finding corroborates our intuition that professional hosts manage fewer listings but target higher-end consumers, suggesting that professionalism is more about quality than quantity. Moreover, professional hosts receive the highest number of user-written reviews, which may serve as a proxy for better performance, such as higher occupancy rates[7].

Variable	(1) lnPrice	(2) lnPrice	(3) lnReviews	(4) lnReviews
SemiProf (β_2)	0.116**	0.101**	1.148***	0.944***
	[2.53]	[2.38]	[6.09]	[5.61]
Professional (β_3)	0.228***	0.242***	1.628***	1.441***
	[4.39]	[4.66]	[9.34]	[8.44]
Superhost		0.0278		0.656***
		[0.83]		[5.68]
NumGuests		0.105***		0.0700**
		[10.64]		[2.41]
NumLangHost		0.0227**		0.110***
		[2.51]		[3.74]
HostExpertise		0.00831		0.196***
		[1.59]		[12.52]
HostRespTime		0.0486		-0.510***
		[1.62]		[-7.15]
HostRespRate		0.00394		-0.00974
		[1.46]		[-1.37]
Stars		0.484***		-1.808***
		[5.11]		[-5.27]
constant	4.667***	1.415***	4.835***	12.24***
	[267.46]	[2.93]	[81.52]	[7.03]
p-value ($\beta_2 = \beta_3$)	$< .10$	$< .05$	$< .05$	$< .05$
N	1042	1042	1184	1184
adj$-R^2$	0.024	0.188	0.131	0.375

Table 3: Professionalism and performance linear models
Source: Authors own creation

3 Conclusion

The increasing popularity of p2p platforms and their potential adverse effects on the housing market have raised concerns and highlighted the need for well-fitting regulatory measures. However, designing effective policies requires a profound understanding of the agents operating within these platforms, particularly their level of professionalism. The number of listings per host is a common proxy used to measure professionalism on Airbnb,

[7]In the Appendix (Tables A2-A3), we have included further geographic analysis, and found no statistically significant difference in our model and sample composition across individual cities.

especially outside the EEA, where hosts are not required to indicate their professional status.

Leveraging on the recently introduced host status, we find that using the number of listings is inadequate to predict host type accurately. Furthermore, we show the importance of using a more fine-grained measure of professionalism to distinguish between semi-professional and professional hosts, with this last being commercial entities, as their behavior and performance are significantly diverse. According to our results, professionals manage fewer listings than semi-professionals but at higher prices. This result suggests that the presence of professionals on the platform might not excessively disrupt individual renting, which was the original target of the platform. Indeed, professionals' investments may improve the real estate capital, indicating a quality difference between the markets for these two groups. In contrast, semi-professionals hold a considerable market share, managing many listings at lower prices. An excessive presence of semi-professionals could result in over-exploitation of the housing market, potentially harming the prospects of individual businesses. These insights can guide the development of city-specific policies that promote sustainable growth, enhance transparency, and ensure a level playing field for all market participants in the peer-to-peer economy. Our study shows that p2p professionalism is not only a matter of 'quantity.' Regulations targeting listing quantity may not deter unethical practices; potentially, a self-declaration system with legal backing could be more effective, coupled with licensing, to ensure market control and quality standards.

References

Barron K, Kung E and Proserpio D (2021) The effect of home-sharing on house prices and rents: Evidence from airbnb. *Marketing Science* 40(1): 23–47.

Chen W, Wei Z and Xie K (2022) The battle for homes: How does home sharing disrupt local residential markets? *Management Science* 68(12): 8589–8612.

Chen W, Wei Z and Xie K (2023) Regulating professional players in peer-to-peer markets: Evidence from airbnb. *Management Science* 69(5): 2893–2918.

Farronato C and Fradkin A (2022) The welfare effects of peer entry: the case of airbnb and the accommodation industry. *American Economic Review* 112(6): 1782–1817.

Garz M and Schneider A (2023) Taxation of short-term rentals: Evidence from the introduction of the "airbnb tax" in norway. *Economics Letters* : 111120.

Horn K and Merante M (2017) Is home sharing driving up rents? evidence from airbnb in boston. *Journal of housing economics* 38: 14–24.

Li H, Kim Y and Srinivasan K (2022) Market shifts in the sharing economy: The impact of airbnb on housing rentals. *Management Science* 68(11): 8015–8044.

Mejia J and Parker C (2021) When transparency fails: Bias and financial incentives in ridesharing platforms. *Management Science* 67(1): 166–184.

Zervas G, Proserpio D and Byers JW (2017) The rise of the sharing economy: Estimating the impact of airbnb on the hotel industry. *Journal of marketing research* 54(5): 687–705.