

LOCATIONAL STRATEGY OF PROFESSIONAL HOSTS: EFFECT ON PERCEIVED QUALITY AND REVENUE PERFORMANCE OF AIRBNB LISTINGS

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Professional hosts usually invest in properties at various locations. Our study aims to investigate the effect of their locational strategy (clustering vs. diversification) on the perceived quality and revenue performance of each listing in their portfolio. Using data of Airbnb in New York City, we find that locational clustering drives the perceived quality but undermines the revenue performance of each listing, and these effects are further moderated by the size of the listing portfolio managed by a professional host. Implications for Airbnb investment using effective locational strategy are provided.

KEYWORDS: *locational clustering; locational diversification; Airbnb; professional host; multilisting*

The proliferation of home sharing has connected individuals who have underused accommodations with travelers who are willing to pay for that space (Xie, Mao, & Wu, 2019). Home sharing has experienced exponential growth in the United States and globally. As of November 2018, Airbnb, the most prominent example of home sharing, has 5 million properties in more than 81,000 cities and 191 countries worldwide (Airbnb, 2018). Home-sharing providers on Airbnb consist of not only regular hosts who rent out only one spare place but many professional hosts (i.e., those with more than one listing) who manage multiple dispersedly located properties (Li, Moreno, & Zhang, 2016). With the rise of professional hosts and the “institutionalized” business on Airbnb, one

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question that remains underresearched is whether a locational clustered or diversified multilisting portfolio performs well in terms of perceived quality and revenue performance. On one hand, it is geographically convenient for a professional host to manage a closely located multilisting portfolio with concentrated efforts, ingrained knowledge about the local area, and a group of specialized vendors for suppliers and service, which can contribute toward favorable service quality, higher guest review ratings, and potentially better booking revenue. On the other hand, a professional host who manages a geographically diversified multilisting portfolio tends to cater to a broader range of market segments for increased revenue. We attempt to add empirical evidence to the debate by investigating (1) the direct effect of locational strategy (clustering vs. diversification) on the perceived quality and revenue performance of each listing in the portfolio of a professional host and (2) how would such an effect changes as the professional host's portfolio grows. As such, our study fills in a void in the literature by focusing on professional hosts and evaluating the performance outcomes of their locational strategy. The findings can inform the decision of Airbnb hosts when investing in multiple listings.

LITERATURE AND HYPOTHESES

The Effect of Locational Clustering

According to the transaction cost theory (Egelhoff, 1982), locational diversification (the opposite of clustering) could raise substantial costs (e.g., operation, information, commuting, or coordination costs) beyond an individual's capability (Buckley & Strange, 2011). Hosts with geographically diversified listings are likely to work with different vendors and housekeepers to run the home-sharing business in different markets, which may increase the costs for operation, coordination, and information. They have limited cognitive capacity to take care of locational dispersed listings due to the physical distance and area difference. In contrast, by focusing on only one area/market, hosts with listings in the same area are more knowledgeable about the local environment, can use fewer suppliers and housekeepers, and can create more localized hospitality connections and experience for guests. For quality control, it is relatively easier and more cost-effective for hosts to manage and maintain service quality, respond and satisfy guest needs for listings in close proximity than distant locales. As a result, locational proximity makes it possible for each listing managed by a professional host to attain a higher guest review rating. We propose the following:

Hypothesis 1₀: Locational clustering has no influence on the perceived quality of each listing managed by a professional host.

Hypothesis 1a: Locational clustering has a positive influence on the perceived quality of each listing managed by a professional host.

Locational diversification can enhance revenue performance for a broader market segment coverage and proximity of places of interest (Ozdemir, 2017; Song, Park, & Lee, 2017). Travelers' location preference being individually specific, geographically diversified accommodations could better cater to their needs in different market segments. Such a market condition is an important business environment factor where the success of locational diversification is contingent on (Lu & Beamish, 2004). Not only can they exploit market imperfections in different areas, but multilisting hosts with geo-diversification can also reduce spatial competition among their own listing portfolio in accordance with the location competition theory (Lee & Jang, 2015). In addition, they can undertake more revenue management strategies (such as pricing position and/or dynamic pricing) in different areas to seize market opportunities. Therefore, it is expected that a geographically diversified multilisting portfolio would boost the revenue-earning capacity of each listing operated by a professional host; that means locational clustering would exert downward pressure on revenue performance. We propose the following:

Hypothesis 2₀: Locational clustering has no influence on the revenue performance of each listing managed by a professional host.

Hypothesis 2_a: Locational clustering has a negative influence on the revenue performance of each listing managed by a professional host.

The Moderation Effect of Portfolio Size on Locational Clustering

As the multilisting portfolio grows, a professional host tends to become more skillful and experienced in managing listings, learn from past mistakes, and apply some good practices such as pricing strategies across the portfolio (Li et al., 2016). Such learning and acquired knowledge on location information would be relatively easy to be picked up by a professional host through investing listings clustered closely in one market, rather than in diversified areas. One single market is more likely to have similar community policies and regulations, vendor supplies, and local knowledge. In other words, hosts with listings in close proximity tend to have more and consistent information about the market. The understanding and familiarity of one market would enable a professional host to serve travelers and guests better. The listings incremental in the same area will foster the hosts investing more interest and efforts in the local area and help to generate more integrative knowledge and insights, which can be naturally spilled over to the nearby listings. Accordingly, perceived quality informed by guest review ratings are likely to improve. In contrast, if the multilisting portfolio grows in diverse locations, the gained local knowledge and practice about the specific market (i.e., community policy, suppliers, and demand patterns) by a professional host may be diluted, and more operational efforts on coordination and commuting are needed for the host, which could undermine the

perceived quality. Hence, the interaction between locational clustering and the size of the multilisting portfolio will positively influence the perceived quality. We propose the following:

Hypothesis 3₀: As the multi-listing portfolio of a professional host grows, the positive effect of locational clustering on the perceived quality of each listing remains the same.

Hypothesis 3a: As the multilisting portfolio of a professional host grows, the positive effect of locational clustering on the perceived quality of each listing is enhanced.

The influence of locational clustering on revenue performance depends on the portfolio size through a negative mechanism. According to the resource constraint theory (Hussain & Windsperger, 2010) and the trade-off argument between quality and quantity (Ellway, 2014), an expanding listing portfolio will limit resources such as efforts and time that a professional host can commit to each listing and, thus, demoralize expected revenue performance of each listing in the portfolio (Xie & Mao, 2017). The negative effect will become amplified when multiple listings spread out in diverse locations. In other words, locational clustering can reduce the negative effect of multilisting on revenue performance. Therefore, although a professional host may have to miss some revenue opportunities by clustering all the listings in one location, he or she would be able to mitigate such revenue lost through fully committed, focused, and dedicated operation without spreading resource and attention to multiple locations. We propose the following:

Hypothesis 4₀: As the multilisting portfolio of a professional host grows, the negative effect of locational clustering on the revenue performance of each listing remains the same.

Hypothesis 4a: As the multilisting portfolio of a professional host grows, the negative effect of locational clustering on the revenue performance of each listing is mitigated.

In sum, Hypothesis 1 and Hypothesis 3 are developed to simultaneously estimate both the direct effect of locational strategies and the moderation effect of multilisting portfolio size with locational strategies on the perceived quality. Likewise, Hypothesis 2 and Hypothesis 4 are proposed to examine the similar effects of locational strategies and portfolio size on the revenue performance.

METHODOLOGY

We collected the entire Airbnb listing data from the New York City, where investment activities of professional hosts on Airbnb are very active.¹ Our data include average monthly revenue and perceived quality of each of the 56,485 listings managed by 21,961 professional hosts in the New York City over a

longitudinal period from October 2014 to August 2017. For each professional host, we captured the size of his or her multilisting portfolio (i.e., the number of Airbnb listing he or she manages), the geographic information (latitude and longitude, address, zip code, etc.) of each listing in the portfolio, and host characteristics such as response rate, response time, and super host badge, which may likely influence the perceived quality and revenue performance of a listing.

Our unit of analysis of the panel data is Listing–Month. Table 1 provides definitions and summary statistics of these variables. Table 2 shows the Pearson correlation coefficients of variables, suggesting multicollinearity would not be a concern.

For each listing in a professional host's portfolio in a given month, its average monthly revenue (*AveRevenue*) and average monthly perceived quality (*AveRating*) are, respectively, a function of the portfolio size (*NumMulti*, a continuous variable), locational strategy (*Cluster_zip*, a dummy variable) and their interaction ($Cluster_zip \times NumMulti$). We also control host characteristics (*ResRate*, *ResTime*, and *SuperHost*) and fixed effects of listings and times² in the analysis. STATA 14 was used to implement the econometrical analyses using panel data.

RESULTS

Tables 3 and 4 present the estimation results. For each table, we estimated the effects with specifications of robust standard errors clustered at the professional host level to reduce heteroscedasticity concerns (Cameron & Miller, 2015).³ We reported the estimation results of the zip code sample as the main model. To cross-validate the results, we also used an alternative neighborhood sample for robustness checks.

In Table 3, a portfolio with listings clustered in a zip code positively affects the perceived quality of each listing (0.056*). Additionally, such an effect is strengthened as the size of the portfolio increases (0.044***). In Table 4, we find that each listing in a locational clustered portfolio is associated with a decrease in its monthly revenue (−0.692***). However, this negative effect is weakened as the portfolio continues to expand (0.129***).

To confirm the estimated effects of the zip code sample, we replicate the estimation using an alternative sample of listings in neighborhoods (rather than zip codes) defined by Airbnb based on booking popularity. All the estimated effects remain consistent between the two samples, validating the robustness of the main results. Table 5 summarizes the results of hypothesis testing.

DISCUSSION

In this study, we examine the direct effect of a multilisting portfolio on both perceived quality and revenue performance. Our findings show that locational clustering positively affects perceived quality but undermines revenue performance of each listing. On one hand, it is more convenient and cost effective for

Table 1
Variable Definition and Summary Statistics

Variable	Definition	<i>M</i>	<i>SD</i>	Minimum	Maximum
Dependent variable					
Revenue	Average monthly revenue (\$) of a listing in a professional host's portfolio	919.04	1484.36	0	38768.8
Perceived quality	Average monthly guest review rating of a listing in a professional host's portfolio	3.41	1.55	0	5
Primary independent variable					
Locational strategy	Dummy variable of whether a professional host invested on a portfolio with Airbnb listings located within the same zip code, with values of 1 = listings clustered in one zip code and 0 = otherwise	—	0.48	0	1
Listing portfolio	Number of listings managed by a professional host in his or her portfolio	2.79	2.63	2	358
Control variable					
Host characteristics					
<i>ResRate</i>	Percentage of new booking inquiries and reservation requests a professional host responded within 24 hours	89.18	21.99	0	100
<i>ResTime</i>	Average turnaround time (in the number of minutes) it takes a professional host to respond to new booking inquiries	316.36	444.17	0.01	1,440
<i>SuperHost</i>	Dummy variable indicating whether a host has a super host badge provided by Airbnb, with values of 1 = yes, 0 = otherwise	—	0.31	0	1

Table 2
Correlation Matrix

	<i>NumMulti</i>	<i>Cluster_zip</i>	<i>ResRate</i>	<i>ResTime</i>	<i>SuperHost</i>
<i>NumMulti</i>					
<i>Cluster_zip</i>	−0.29				
<i>ResRate</i>	0.02	0.00			
<i>ResTime</i>	−0.05	0.04	−0.74		
<i>SuperHost</i>	−0.02	−0.01	0.13	−0.14	

Table 3
Effect Estimates on Perceived Quality of an Airbnb Listing

Dependent Variable: <i>AveRating</i>	Main Model Zip Code		Robustness Check Neighborhood	
Primary variables				
<i>Cluster_zip</i>	0.056*	(0.065)	—	—
<i>Cluster_neig</i>	—	—	0.172***	(0.000)
<i>NumMulti</i>	−0.015***	(0.000)	−0.013***	(0.000)
<i>Cluster_zip</i> × <i>NumMulti</i>	0.044***	(0.000)	—	—
<i>Cluster_neig</i> × <i>NumMulti</i>	—	—	0.035***	(0.000)
Control variables				
<i>ResRate</i>	0.007***	(0.000)	0.007***	(0.000)
<i>ResTime</i>	−0.000	(0.389)	−0.000	(0.303)
<i>SuperHost</i>	0.886***	(0.000)	0.874***	(0.000)
Month fixed effects	Y		Y	
Listing fixed effects	Y		Y	
Constant	3.139***	(0.000)	3.059***	(0.000)
Observations	278,071		277,630	
<i>R</i> ²	0.859		0.862	

* $p < .1$. ** $p < .05$. *** $p < .01$.

individuals to oversee service quality in properties within close distance. On the other hand, closed located listing portfolio cannot satisfy the needs of travelers in different geographical segments, losing the potential revenue generating capacity. In the meantime, we also examine the moderating effect of the size of the multilisting portfolio. We find that the portfolio size enhances the positive influence of locational clustering on perceived quality while suppressing the negative effect of locational clustering on revenue performance. In other words, when the hosts expand the number of listings, they are in better shape for both perceived quality and revenue performance on a per-listing basis, unveiling the dynamic nature of the size factor on a multilisting portfolio.

Table 4
Effect Estimates on Revenue Performance of an Airbnb Listing

Dependent Variable: <i>logAveRevenue</i>	Main Model Zip Codes		Robustness Check Neighborhoods	
Primary variables				
<i>Cluster_zip</i>	-0.692***	(0.000)	—	—
<i>Cluster_neig</i>	—	—	-0.677***	(0.000)
<i>NumMulti</i>	0.050***	(0.000)	0.041***	(0.000)
<i>Cluster_zip</i> × <i>NumMulti</i>	0.129***	(0.000)		
<i>Cluster_neig</i> × <i>NumMulti</i>			0.154***	(0.000)
Control variables				
<i>ResRate</i>	0.003***	(0.004)	0.003***	(0.005)
<i>ResTime</i>	-0.001***	(0.000)	-0.001***	(0.000)
<i>SuperHost</i>	1.696***	(0.000)	1.707***	(0.000)
Month fixed effects		Y		Y
Listing fixed effects		Y		Y
Constant	5.821***	(0.000)	5.821***	(0.000)
Observations		278,071		277,630
<i>R</i> ²		0.818		0.817

p* < .1. *p* < .05. ****p* < .01.

Table 5
Summary of Hypothesis Testing

Hypothesis (H)	Result
H1a	Supported
H2a	Supported
H3a	Supported
H4a	Supported

Our study confirms the effect of locational strategy in the home-sharing business, thereby shedding light on the future operation and investment strategies for professional hosts. Additionally, our study reveals how the performance effects (in terms of perceived quality and monthly revenue) of locational strategy would change with the portfolio size, enriching and extending the theories of locational clustering versus diversification to the home-sharing context. We particularly evaluate perceived quality to complement prior research that only focuses on revenue performance of Airbnb (e.g., Zervas, Proserpio, & Byers, 2017), emphasizing that consumers tend to use less-biased “social proof” (i.e., guest review ratings) to make purchase decisions in the sharing economy. Perceived quality and revenue performance are not necessarily aligned as the latter is also conditional on market competition and consumer needs.

Our findings provide important practical implications for Airbnb hosts. Professional hosts are interested in investing in closely concentrated or distantly located listings for profit maximization. While locational clustering can enhance perceived quality regardless of the size of the portfolio, this strategy may not benefit revenue performance of each Airbnb listing in the portfolio. Additionally, such a negative effect would be weakened as the portfolio expands to consist of more listings. Therefore, our advice on portfolio expansion is first to acquire additional listings located in proximity and then move to other geographically diverse areas. Those professional hosts who heavily invest in listings in geographically distant locations are generally encouraged to improve perceived quality for a viable growth of the Airbnb business. As high perceived quality does not necessarily mean better revenue for professional hosts in our study, it is also suggested that multilisting hosts can endeavor to align service quality with the performance by adopting better pricing strategies and customer loyalty programs. Additionally, for communities and legislators who have an interest in regulating professional hosts, we advocate the policy should be customized with consideration of the geo-locational level on the number of listings.

Our study is not without limitations. First, our geographical scope is restricted to the New York City, which could present a challenge on the applicability and generalizability of the findings to other regions. Future research can use a more representative sample. Second, whether a multilisting portfolio is managed by a management company or professional host remains unknown due to our data unavailability. More research along this research stream is highly encouraged.

CONCLUSION

Airbnb is currently the largest home-sharing marketplace that can access more than 5 million hosts worldwide. With the rise of professional hosts who manage more than one listing for investment purposes on this platform, our study serves as the first empirical attempt to understand the effects of locational clustering versus diversification of each listing in a professional host's multilisting portfolio. The results of our study using Airbnb data in New York City show that locational clustering of multilisting portfolio improves the perceived quality but weakens the revenue performance. The magnitudes of these effects are intensified for perceived quality and softened for revenue performance when professional hosts increase the portfolio size. Our findings thus lay the groundwork of locational strategies for professional hosts in the home-sharing business.

NOTES

1. The metropolitan statistical area of New York City includes New York–Newark–Jersey City, NY–NJ–PA Metro Area. This market, with the largest population and gross domestic product in the United States, is the top market of Airbnb investment because of strong demand and economic activities.

2. This is to control for the possibility that certain listings in certain months are more attractive to travelers and meanwhile are also populated with more investor hosts. Prior to the analysis, we have conducted a Hausman test to decide between fixed or random effects (Greene, 2012). The result suggests that fixed effects estimation is preferred.

3. Because the observations are composed of repeated observations from the same host, the specification of robust standard errors clustered at the host level appropriately account for the independence of observations across hosts as well as correlation within each host.

REFERENCES

- Airbnb. (2018). About us. *Airbnb Press Room*. Retrieved from <https://press.airbnb.com/en-uk/about-us/>
- Buckley, P. J., & Strange, R. (2011). The governance of the multinational enterprise: Insights from internalization theory. *Journal of Management Studies*, 48, 460-470.
- Cameron, C., & Miller, D. L. (2015). A practitioner's guide to cluster-robust inference. *Journal of Human Resources*, 50, 317-372.
- Egelhoff, W. G. (1982). Strategy and structure in multinational corporations: An information processing approach. *Administrative Science Quarterly*, 27, 435-458.
- Ellway, B. P. W. (2014). Is the quantity-quality trade-off in call centers a false dichotomy? *Managing Service Quality*, 24, 230-251.
- Greene, W. H. (2012). *Econometric analysis* (6th ed.). Upper Saddle River, NJ: Pearson.
- Hussain, D., & Windsperger, J. (2010). Multi-unit ownership strategy in franchising: Development of an integrative model. *Journal of Marketing Channels*, 17, 3-31.
- Li, J., Moreno, A., & Zhang, D. J. (2016). *Pros vs. Joes: Agent pricing behavior in the sharing economy* (Ross School of Business Paper No. 1298). Retrieved from http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2708279
- Lee, S. K., & Jang, S. (2015). Conditional agglomeration externalities in lodging markets. *Journal of Hospitality & Tourism Research*, 39, 540-559.
- Lu, J. W., & Beamish, P. W. (2004). International diversification and firm performance: The S-curve hypothesis. *Academy of Management Journal*, 47, 598-609.
- Ozdemir, Q. (2017). The effect of geographic dispersion on the initial and long-run IPO performance. *Journal of Hospitality & Tourism Research*, 41, 869-897.
- Song, S., Park, S., & Lee, S. (2017). Impacts of geographic diversification on restaurant firms' risk: Domestic vs. international diversification. *International Journal of Hospitality Management*, 61, 107-118.
- Xie, K., & Mao, Z. (2017). The impacts of quality and quantity attributes of Airbnb hosts on listing performance. *International Journal of Contemporary Hospitality Management*, 29, 2240-2260.
- Xie, K., Mao, Z., & Wu, J. (2019). Learning from peers: The effect of sales history disclosure on peer-to-peer short-term rental purchase. *International Journal of Hospitality Management*, 76A, 173-183.
- Zervas, G., Proserpio, D., & Byers, J. W. (2017). The rise of the sharing economy: Estimating the impact of Airbnb on the hotel industry. *Journal of Marketing Research*, 54, 687-705.

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