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Sherae Daniel
University of Cincinnati, daniesr@ucmail.uc.edu

Saidat Abidemi Sanni
University of Cincinnati, sannisa@mail.uc.edu

Lauren Rhue
University of Maryland, lrhue@umd.edu

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Emergent Research Forum (ERF)

Sherae Daniel
University of Cincinnati
daniesr@ucmail.uc.edu

Saidat Abidemi Sanni
University of Cincinnati
sannisa@mail.uc.edu

Lauren Rhue
University of Maryland
lrhue@umd.edu

Abstract

Reviews in online sharing platforms hold value and drive sales. They also can include bias based on the review author's racio-ethnicity. We set out to understand how racio-ethnicity bias impacts review sentiment. To do this, we draw on the power-threat view and propose two hypotheses. We find support for these hypotheses using archival data from 2,473 guest/host dyads and their associated Airbnb reviews. We find reviews with a more positive sentiment are left by guests from the national majority racio-ethnicity and hosted by a host from the same racio-ethnicity. This pattern is stronger in neighborhoods primarily inhabited by members of minority racio-ethnicities. This research contributes to the literature on online reviews and holds practical implications for digital platforms.

Keywords

Airbnb, Online Reviews, Social Inclusion, Power-threat.

Introduction

In health care, education, and lodging, reviews drive consumer choices about the providers to use (Duan et al., 2008; Ke et al., 2020; Kokkodis & Lappas, 2020). Consumers decide which products and services to use based on online reviews (Ke et al., 2020). For those who select lodging through the internet, reviews carry extra importance. Guests often select a host and associated lodging without meeting the host or seeing the accommodations. Reviews are critical to creating the trust and certainty necessary to facilitate those sales (Cui et al., 2020).

Consumers believe these reviews reflect aspects of the product or service. However, online reviews are often a biased assessment of product or service quality because they include reflections of the review author's identity (Edelman et al., 2017; Kokkodis & Lappas, 2020). If the author writes a review that reflects their identity, a person with a different identity may not find the review as applicable as a person with the same identity. In addition, reviews that incorporate bias may unfairly denigrate some service providers based on their identity traits. One path to making reviews more useful to consumers is to better understand how and under what conditions the review author's bias(es) show up in reviews. We set out to answer the research question: How do guest and host identity, and the identities of those in the Airbnb neighborhood, jointly affect the sentiments left in online reviews?

To answer this question, we draw on the power-threat hypothesis (Giles & Evans, 1986). The power-threat hypothesis suggests that a majority racial group becomes more sensitive as the size of a proximate minority racial group increases (Craig & Richeson, 2014). Building on this theory, our core thesis is that when the size of the minority racial group (e.g., Black) is large, as in a Black neighborhood, White guests will leave more positive reviews for White hosts than when the lodging is in a White neighborhood. Analysis of 2,473 guest/host dyads and their reviews offer support for our thesis. Our study contributes to the literature that

seeks to understand the antecedents of online reviews by introducing neighborhood demographics as an important driver of online review sentiment. From a theoretical perspective, our work reinforces the need to leverage sociological theories in attempts to understand digital platforms and online reviews. The findings hold practical implications for platforms such as Airbnb.

Theoretical Foundations and Hypotheses

The power-threat hypothesis arises from the sociology literature (Giles & Evans, 1986) and argues that individuals place themselves into groups and derive power based on those groupings. An individual's actions and attitudes can be understood based on their reaction to a perceived threat to their group's power. We leverage this theory to understand the behaviors of a guest who may feel that their group is under threat as they use an Airbnb lodging.

Airbnb is a digital sharing platform that enables hosts to rent out their private housing units to guests. As of 2018, Airbnb is in 83 countries and 674 cities and stands as the largest provider of short-term accommodations (Sundararajan, 2018). In Airbnb, the exchanges work by connecting strangers and require one to be vulnerable to another. Visiting an Airbnb unit is inherently a threatening experience for guests as they plan to stay in a new place with an unfamiliar host. To the degree that aspects of the interactions decrease feelings of threat, guests feel more satisfaction with the interaction. When an individual feels threatened, they may increase identification with their group (Craig & Richeson, 2014). For a White guest, the increased identification with the White host may lead the guest to see the host as similar and therefore experience reduced uncertainty in social expectations. For instance, they may share expectations about food, clothing, and communication. When a guest shares the same majority racio-ethnicity, the guest may feel certain about what to expect from the host, and less threatened by the unknown. This may lead to a more favorable feeling about how they felt staying in the Airbnb and a more positive review sentiment.

H1: A guest who is a member of the national majority racio-ethnicity leaves hosts of the same racioethnicity reviews with higher positive sentiment compared to other similar guest-host dyads.

Before writing the review, the guest uses the Airbnb unit. Each Airbnb is in a neighborhood. If the Airbnb neighborhood consists primarily of people whose racio-ethnic identity differs from the guest's racio-ethnic identity, racio-ethnicity sensitives increase in awareness (Craig & Richeson, 2014). When racio-ethnic issues are salient, negative outcomes can follow. For instance, White Americans for whom the U.S. racial demographic shift was made salient preferred interactions with their own racial group over minority racial groups, expressed more automatic pro-White/antiminority bias, and expressed more negative attitudes toward Latinos, Blacks, and Asian Americans (Craig & Richeson, 2014). Indeed, Pettigrew (1959) found that prejudice among White Southerners was greater in localities in which the Black population share was large. Furthermore, Black people are associated with negative stereotypes. Being inundated by Black people may make a White guest feel that their safety is threatened. The number of people associated with a specific racio-ethnicity in a neighborhood reflects the power of that group in the neighborhood and can lead others to feel threatened (Taylor, 1998). When a person feels that there is a threat that they will lose their power, they may be more sensitive to racial differences (Craig & Richeson, 2014).

As the White guest seeks to remember the stay and write the review, the White host and associated accommodation might stand out from the Black neighborhood as a refuge, increasing the White guest's appreciation of the host. The White guest may remember their time with the White host as a respite from the threatening Black neighborhood. Because of these feelings of threat around their status as local minorities, as a White guest craft reviews, the guest will value a similar host more than in other situations. A similar host can help guests to navigate the threat around how to engage in this environment, lowering their fear of threat and increasing their satisfaction with their experience.

H2: When the Airbnb unit is in a neighborhood that is predominantly composed of members of a national minority racio-ethnicity, a guest who is a member of the national majority racio-ethnicity leaves hosts of the same racio-ethnicity even higher positive sentiment compared to other similar guest host dyads.

Methodology

To empirically test these hypotheses, we use archival data from the Airbnb platform, InsideAirbnb. The sample includes 2,473 dyads where the guest and host in each dyad belong to the same racio-ethnicity

category. The dependent variable is calculated by performing text analysis using the AFINN dictionary on the reviews left by the guests (Nielson, 2011). The independent variable "Dyads" is calculated using a dataset from the Harvard Dataverse that categorizes names into racio-ethnicity categories using U.S. mortgage applications (Tzioumis, 2018). We matched the names with the racio-ethnicity vector from the Harvard Dataverse dataset and were able to associate 82% of the guest and 67% of the host names with a racioethnicity vector. Next, we create binary indicators such that if the percentage of times that a name is associated with a particular racio-ethnicity category is above the median, the name is coded as "1" indicating that the host and guest belongs to that racio-ethnicity category. If the host and the guest have the same racio-ethnic category, then the dyad is similar. In the United States, the national majority is White, so we identify those dyads as the majority dyads. We measure the demographic characteristics of the neighborhood, defined as the variable "Majority Neighborhood (%)" using the American Community Survey 5-Year Data (2009-2019) which consist of racio-ethnic percentages by zip codes. Percent Majority represents the percentage of Non-Hispanic White people in a specific zip code.

We control for a variety of variables. These include Review Length which describes the total number of words in each review by guest. Mean Listing Price is the average price for each listing by host. Number of Reviews is the total number of reviews for each listing. Review Score Rating Accuracy from the archival data is the accuracy score allotted to each review. Host Bio is a binary variable for whether the host has a biography. We also control for the number of bathrooms in each listing. Host and Guest Degree Centrality are two network-based metrics that measure the popularity of hosts to other guests and guests to other hosts, respectively. Host Gender and Guest Gender are identified using the U.S. social security database.

Table 1 displays descriptive statistics and Table 2 shows the OLS regression estimation results. Model 1 includes only the control variables. Model 2 shows support for H1. The coefficient estimate on Dyads (β = 0.339) is significant and positive. Model 3 shows the coefficient estimates of the interaction between Dyads and Majority Neighborhood (β = -0.022) is significant and negative, providing support for H2.

Variable	N	Mean	Median	Min	Max
Sentiment Score	2,473	8.34	7	-11	48
Guest Gender-Male* Host Gender-Male	2,473	0.28	0	0	1
Review Length	2,473	57.67	45.00	1	439
Mean Listing Price	2,473	169.90	118	37	5,000
Number of Reviews	2,473	149.60	130	1	402
Review Score Rating (Accuracy)	2,473	9.90	10.00	8.00	10.00
Majority Neighborhood (% Majority)	2,473	41.84	46.00	2.70	83.20
Majority Neighborhood (Binary)	2,473	0.25	0	0	1
Host Bio	2,473	0.72	1	0	1
Number of bathrooms	2,473	1.33	1	0	5.50
Host Degree Centrality	2,473	26.01	14	1	102
Guest Degree Centrality	2,473	1.04	1	1	4

Table 1. Summary Statistics

Dependent Variable: Review Sentiment			
Variable	(1)	(2)	(3)
Dyads		0.339 (0.098)*	1.255 (0.035)*
Dyads*Majority Neighborhood (%)			-0.022

			(0.100)*
	Controls		
Guest Gender-Male* Host Gender-Male	-1.104	-1.123	-1.116
	(0.000)***	(0.000)***	(0.000)***
Review Length	0.070	0.070	0.070
	(0.000)***	(0.000)***	(0.000)***
Review Score Accuracy	1.531	1.594	1.556
	(0.000)***	(0.000)***	(0.000)***
Number of Reviews	0.001	0.001	0.001
	(0.496)	(0.573)	(0.529)
Mean Listing Price	0.000	0.000	0.000
	(0.824)	(0.893)	(0.954)
Number of bathrooms	0.184	0.200	0.214
	(0.348)	(0.308)	(0.276)
Host Bio	0.093	0.073	0.012
	(0.704)	(0.767)	(0.963)
Host Degree Centrality	0.006	0.007	0.006
	(0.280)	(0.225)	(0.301)
Guest Degree Centrality	0.465	0.439	0.441
	(0.264)	(0.292)	(0.291)
Majority Neighborhood (%)			0.014
			(0.139)
R^2	0.33	0.33	0.34
Notes: P values are in parentheses. *$p<0.1$. **$p<0.05$.***$p<0.01$. N=2,473			

Table 2. Regression Results

Discussion

We set out to answer the research question: How does guest and host identity, and the identities of those in the Airbnb neighborhood jointly affect the sentiments left in online reviews? Our primary thesis was the threat that a White American feels in a predominantly Black neighborhood influences the review that they leave. We empirically found support for the thesis.

This paper makes multiple contributions to research. Previous research addresses some issues related to how identity influences digital platform behaviors (Edelman & Luca, 2014; Ghoshal & Gaddis, 2015; Greenwood et al., 2017; Ye et al., 2017; Younkin & Kuppuswamy, 2017). Yet, in attempting to understand the influence of racio-ethnicity, this literature has focused primarily on an individual or at most a dyad. Taking a more sociological view and highlighting the influence of a neighborhood constitutes a necessary expansion to this work. Our findings indicate an undocumented driver of systematic differences in online reviews: neighborhood characteristics. Our research extends work about how racio-ethnicity shapes online reviews by empirically showing that reviewer sentiment is shaped, in part, by the predominant racio-ethnicity of the neighborhood where the Airbnb is located. In doing so, our work advances research that seeks to understand the significance of offline context on reviews.

These findings yield implications for Airbnb. Airbnb can improve guest satisfaction and associated sales if they help the guest understand which reviews best apply to them. This could enable Airbnb to make better use of the most relevant reviews, hereby aiding the guest in selecting the accommodations that they will most enjoy.

This study includes limitations that offer opportunities for future research. We tested our hypotheses in one city, New Orleans. This city is in the Southern part of the United States where there is a history of racial tensions. One opportunity to advance this line of research is to extend this work to other geographies beyond New Orleans to investigate if the patterns that we have observed in New Orleans can be generalized or not.

Conclusion

The findings presented herein represent an advancement in the IS literature that seeks to better understand the antecedent of online reviews. We introduce neighborhood demographics as an important boundary condition for understanding the antecedents of online reviews.

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