Tourism Management 55 (2016) 62–73

Contents lists available at ScienceDirect

Tourism Management

journal homepage: www.elsevier.com/locate/tourman

# Trust and reputation in the sharing economy: The role of personal photos in Airbnb

Eyal Ert, Aliza Fleischer*, Nathan Magen

*Department of Environmental Economics and Management, The Hebrew University of Jerusalem, Rehovot 7610001, Israel*

## HIGHLIGHTS

- We conducted an empirical analysis of Airbnb's data and a controlled experiment.
- We examined the impact of hosts' photo on Airbnb on guests' decisions.
- A more trustworthy photo leads to a higher price and increased chance to purchase.
- Review scores affect guests' decisions only when varied experimentally.

## ARTICLE INFO

*Article history:*
Received 30 September 2015
Received in revised form
27 January 2016
Accepted 29 January 2016
Available online 12 February 2016

*Keywords:*
Sharing economy
Airbnb
Trustworthiness
Attractiveness
Online reviews
Electronic word of mouth
Decision making

## ABSTRACT

'Sharing economy' platforms such as Airbnb have recently flourished in the tourism industry. The prominent appearance of sellers' photos on these platforms motivated our study. We suggest that the presence of these photos can have a significant impact on guests' decision making. Specifically, we contend that guests infer the host's trustworthiness from these photos, and that their choice is affected by this inference. In an empirical analysis of Airbnb's data and a controlled experiment, we found that the more trustworthy the host is perceived to be from her photo, the higher the price of the listing and the probability of its being chosen. We also find that a host's reputation, communicated by her online review scores, has no effect on listing price or likelihood of consumer booking. We further demonstrate that if review scores are varied experimentally, they affect guests' decisions, but the role of the host's photo remains significant.



## 1. Introduction

Online peer-to-peer (P2P) marketplaces are growing at a rapid rate, especially in travel and tourism services (Pizam, 2014). These marketplaces comprise individuals (consumers) who transact directly with other individuals (sellers), while the marketplace platform itself is maintained by a third party (Botsman & Rogers, 2011). Early marketplaces of this kind, such as eBay and Craigslist, have been associated with the trade of traditional retail items (Sundararajan, 2014). Recently, a new type of P2P commerce, mainly associated with the supply of services and commonly known as the "sharing economy," has emerged (Botsman & Rogers, 2011). Sharing economy marketplaces have flourished particularly within the field of travel and tourism, in which locals supply services to tourists. Examples include taxi services (Uber), restaurant services (Eatwith), tour guide services (Vayable), and accommodation services (Airbnb). The rise of the sharing economy in tourism, especially in the accommodation market, is believed to be driven by economic and societal considerations (Botsman & Rogers, 2011; Tussyadiah, 2015). People seek low-cost accommodations and direct interactions with the local community (Guttentag, 2015). These direct interactions, which follow the online transaction, comprise perhaps the most distinct difference between the early P2P markets and the new sharing-economy markets. Accordingly, sellers' profiles in the sharing-economy markets contain much more personal information on the seller than their counterparts in early P2P markets. The clearest evidence for this trend is provided by the prominent use of sellers' personal photos in the sharing economy markets. These photos are used as a means of identity

* Corresponding author.
*E-mail addresses:* eyal.ert@mail.huji.ac.il (E. Ert), aliza.f@mail.huji.ac.il (A. Fleischer), nathan.magen@mail.huji.ac.il (N. Magen).

http://dx.doi.org/10.1016/j.tourman.2016.01.013
0261-5177/

verification and are intended to foster an increased sense of personal contact (Guttentag, 2015). However, we claim that the seller's personal photos play an additional role in the sharing economy markets. In this paper, we test whether perceived trustworthiness of sellers from their photos can affect consumers' choices in sharing economy markets.

Since trading with strangers in P2P marketplaces involves asymmetric information and economic risks, these businesses have developed reputation mechanisms to encourage trust among traders (Resnick & Zeckhauser, 2002). The most common reputation mechanism includes the presentation of online reviews of the seller by experienced users. We contend that in sharing economy platforms, facilitating trust among parties is even more critical to operation than it is in earlier types of P2P platforms. A fundamental difference between the two marketplaces is that the earlier ones focus on selling products, while sharing economy platforms offer services. Therefore, traditional P2P marketplaces involve only monetary risks, while sharing economy platforms include additional risks. In fact, the latter platforms entail risks even when no monetary transactions are involved. For example, Couch-Surfing (Lauterbach, Truong, Shah, & Adamic, 2009) offers free accommodation in strangers' homes, but the mere act of sharing a home with a stranger can be risky.

Services are intangible experienced goods and, as such, their quality cannot be verified before they are consumed. In addition, services are characterized by inseparability, i.e., they are produced and consumed simultaneously (Zeithaml, Bitner, & Gremler, 2006). Therefore, the person who provides the service becomes an integral part of the experience. Indeed, transactions via sharing economy platforms involve online trading, but are typically followed by face-to-face interactions upon provision of the service. For example, on Airbnb, the host (i.e., the seller and service provider) delivers the living space when the guest (i.e., the consumer) arrives, and is expected to fulfill the guest's needs. In some cases, the host even shares the living space with the guest (similarly to CouchSurfing, but including a monetary transaction). These differences imply that the host's attributes are critical in ensuring the delivery of the product and the provision of high-quality service. Another important implication is that customers of sharing economy services are exposed to risks other than monetary loss, to which customers of more traditional P2P markets are exposed (Lauterbach et al., 2009). A recent unfortunate example is the experience of Mike Silverman, who was attacked by his Airbnb host's Rottweiler during his stay in Salta, Argentina and spent two nights in the hospital as a result (Lieber, 2015a). An even more extreme example is the report of the sexual assault of a nineteen-year-old by his Airbnb host during his stay in Madrid (Lieber, 2015b). As these examples illustrate, the nature of the travel service experience and the fact that it exposes consumers to risks make trust and reputation pivotal to the proper functioning of the sharing economy business.

To facilitate online trust, sharing economy marketplaces incorporate online reviews, similarly to traditional P2P online markets. Indeed, most of the literature concerning trust in e-commerce addresses the role of online reviews (Jøsang, Ismail, & Boyd, 2007; Resnick & Zeckhauser, 2002). Yet, sharing economy sites offer additional information through the pervasive use of personal photos of the sellers as a means of identity verification (Liu, 2012) and in order to emphasize the sense of personal, sociable, human contact (Botsman & Rogers, 2011; Tussyadiah & Pesonen, 2015). On Airbnb, the host's photo is presented next to the photo of the living space, probably in an attempt to both verify hosts' identities and to foster the sense of a personal encounter.

In this paper, we contend that the seller's photo on Airbnb may affect consumers far beyond reducing anonymity and increasing social presence. A recent study on Airbnb listings in New York City provides supporting evidence for our assertion by suggesting that personal photos might facilitate racial discrimination (Edelman & Luca, 2014). Specifically, the authors find that non-black hosts in New York City charge higher prices than their black counterparts, and suggest that this effect is driven by the use of photos, which reveal the hosts' race. We assert that the seller's photo communicates information about her attributes whose perception and effect on the online consumer have yet to be studied. Specifically, we contend that consumers infer sellers' trustworthiness from their photos. We term this judgment 'visual-based trust.' We also assert that this visual-based trust affects the consumer's behavior at least as much as, if not more than, the seller's reputation as communicated by her online review score. To the best of our knowledge, these potential effects of visual-based trust on online transactions have never been studied, as previous research on trust in e-commerce has focused almost exclusively on reputation mechanisms.

Our focus on Airbnb is motivated by evidence that suggests that it is probably the most prominent example of a tourism-related sharing economy business. Airbnb is a marketplace platform through which individuals ('hosts') rent a living space they own to other individuals ('guests') who seek accommodation on a short-term basis. Since its establishment in 2008, Airbnb has been growing exponentially, and estimates suggest that it is still far from reaching its full potential. In a recent New York Times interview, Brian Chesky, cofounder of Airbnb, stated that "over 17 million total guests have stayed on Airbnb. It took Airbnb nearly four years to get to its first million guests. Now one million guests stay on Airbnb every month" (Friedman, 2014). Airbnb is becoming an important player in the accommodation markets. Guttentag (2015) examined Airbnb's potential to disrupt the traditional accommodation market through the lens of disruptive innovation theory. Indeed, Zervas, Proserpio, and Byers (2014) found that Airbnb is already challenging the hotel industry. Their estimates suggest that hotels in Texas suffer a loss of 0.05% in quarterly revenues for each one percent increase in Airbnb listings. Tussyadiah and Pesonen (2015) suggested that the use of P2P accommodations might affect not only the accommodation market, but also consumers' travel patterns.

Our current investigation of the effect of hosts' photos on consumers' decision making on Airbnb comprises two main studies. The first study tested the effects of the host's visual-based trust and reputation on the listing price. We performed hedonic price analysis (Rosen, 1974) based on revealed data of all Airbnb's listings in Stockholm, Sweden, which was combined with ratings of the hosts' trustworthiness and attractiveness as perceived from their personal photos. We found that hosts who are perceived from their photos as more trustworthy charge higher prices than their counterparts who are perceived as less trustworthy. Surprisingly, online-review scores had no effect on listing price on Airbnb, and we found evidence that suggests that they had no effect because of their extremely high ratings and loss of informative value. The second study, a controlled experiment, revealed that: (1) visual-based trust directly affects consumers' choices, and its effect is stronger than that of other visual attributes; (2) under the present conditions of Airbnb, in which reputation has extremely low variance, visual-based trust has a stronger impact on consumers' choice than reputation; and (3) introducing variance into the review scores increases the impact of reputation on consumers, but does not eliminate the effect of visual-based trust.

In the following sections, we present our conceptual framework, discuss the concepts of trust and reputation, and provide the theoretical background behind the notion of visual-based trust. Next, we present our studies and their main results, and discuss their implications regarding the role of trust and reputation on Airbnb.

## 2. Conceptual framework

We consider a marketplace platform such as Airbnb in which hosts (the service providers) rent their assets (living space). The guest experience suggested by the host's offer is subject to two main elements: (1) the product's attributes, which in the case of Airbnb are defined by the type of living space, its size, number of rooms, location, and so on and (2) the host's attributes, such as her responsiveness, hospitality, and fairness. The host's attributes cannot be directly observed. Yet, it is possible to infer an overall impression of the host from the online review scores, which communicate her reputation, and from the host's visual photo, which may communicate at least some of her other attributes. We assert that when potential guests view the host's photo, they form an immediate impression of her trustworthiness (we refer to this impression as "visual-based trust") and attractiveness. Fig. 1 presents our basic conceptual framework, from which we later derive our hypotheses. According to this framework, the guest bases his purchase decisions on the attributes of both the product and the host. The host's attributes consist of her reputation, based on her online review scores, and visual-based trustworthiness and attractiveness, based on her personal photo.

Following previous studies (Oosterhof & Todorov, 2008) on face evaluation, we suspected that the visual perceptions of the host's trustworthiness and attractiveness could be correlated. Thus, although we are interested in establishing their pure effects on the online consumer, we also allowed for their interaction.

## 3. Trust and reputation In P2p e-commerce

Trust and reputation in e-commerce are closely related, but not identical, concepts. Reputation is a public opinion that represents a collective evaluation of a group regarding the characteristic of an entity or a person (Wang & Vassileva, 2007). In P2P e-commerce, reputation information is typically delivered to consumers via numerical review scores of experienced customers who have interacted with the seller. Trust is a subjective feeling that the trustee will behave in a certain way according to an implicit or explicit promise she makes. It is an essential ingredient for transactions in online P2P marketplaces, since two strangers are unlikely to engage in a monetary transaction without trusting one another (Bonsón Ponte, Carvajal-Trujillo, & Escobar-Rodríguez, 2015; Kim, Chung, & Lee, 2011). As mentioned above, the main method P2P marketplaces use to facilitate trust is the formation of reputation mechanisms through online-reviews. Thus, although reputation is only one element of trust building, most empirical research has focused on reputation mechanisms. For example, Resnick and Zeckhauser (2002) found that eBay sellers with better reputations are more likely to enjoy a boost in sales, but not in price, than their counterparts with less good reputations. Yacouel and Fleischer (2012) found that online reviews affect hotel prices on Booking.com, an online market for accommodation services, which can be viewed as a business-to-customer equivalent of Airbnb. Sparks and Browning (2011) examined the effect of specific features of online reviews, e.g., their valence and framing, on booking intentions and consumer trust.

Reputation has been proposed as a central factor that affects trust and the relationship between reputation and trust can be described as 'positive reputation increases trust.' Yet reputation is not a necessary condition for trust; people sometimes trust strangers even in the absence of their reputation information. For example, laboratory experiments on the investment/trust game found that people may trust complete strangers with unknown reputations even when doing so is irrational (Berg, Dickhaut, & McCabe, 1995). Further research suggests that social distance (Glaeser, Laibson, Scheinkman, & Soutter, 2000) and the degree of identification and communication between parties are also significant factors in trust building (Bohnet & Frey, 1999).

We argue that in sharing economy platforms such as Airbnb, the consumer's trust is influenced by the seller's personal photo. The seller's photo is a salient environmental cue that may act in a P2P market similarly to environmental cues (e.g., brand name) in business-to-customer markets and can automatically influence consumer behavior (Fitzsimons, Chartrand, & Fitzsimons, 2008). In fact, the human face is one of the most salient environmental sources of social information (Zebrowitz, Voinescu, & Collins, 1996). Sometimes even the mere presentation of personal photos may facilitate trust. Indeed, lab studies of the investment/trust game suggest that under certain conditions, a player who posts a personal photo has an advantage over one who does not (Eckel & Petrie, 2011). Gefen and Straub (2004) suggest that such positive effects may result from the feeling of social contact that is typically missing in e-commerce.

Nonetheless, there are reasons to believe that the potential effect of photos on online consumers goes beyond their mere presence. Specifically, we suggest that when individuals view personal photos of others, they make snap judgments about their social attributes. Neuroscientists have shown that face-to-trait inference appears to be intuitive and automatic, and that the human brain is capable of forming a judgment of a person's trustworthiness with less than a second's exposure to their face (Engell, Haxby, & Todorov, 2007; Todorov, Pakrashi, & Oosterhof, 2009). While these facial-based judgments might seem highly subjective, they show broad cross-cultural consensus (Rule et al., 2010). Recent lab experiments aimed at assessing features of face-to-face interactions suggest that people observe subtle variations in

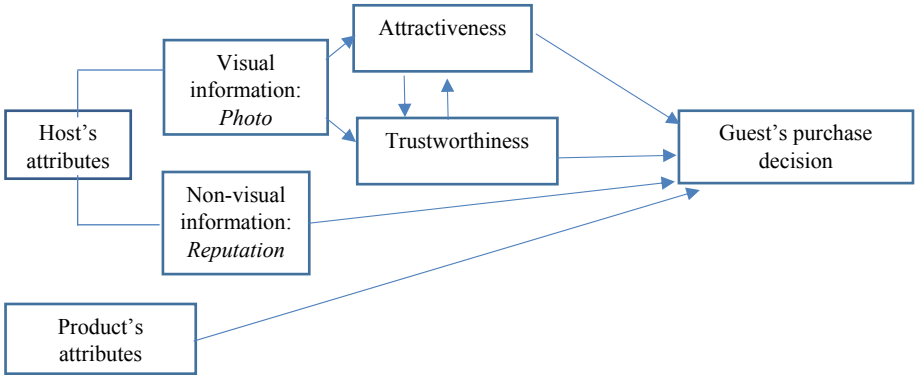



**Fig. 1.** Basic conceptual framework.

appearance and that this information may affect their decisions (Eckel & Petrie, 2011). For example, people in the lab were influenced by their counterpart's attractiveness (Wilson & Eckel, 2006), and facial expressions (Scharlemann, Eckel, Kacelnik, & Wilson, 2001). Bente, Baptist, and Leuschner (2012) evaluated participants' responses to fictitious trustees' photos in a computer-mediated simulation of the trust game. Their results suggested initial evidence for the possibility that both reputation and visual-based trust might affect potential buyers. Yet, generalizing these results to real P2P settings is problematic, as the studies merely introduced the other person's photo and her (hypothetical) review score. No product or service was included, although in real P2P settings the focus of attention is the product/service for sale, while the seller information is only an add-on. Thus, in real settings, there is no evidence of whether visual-based trust perceived by viewing a seller's photo has any effect on buyers. Even if it does, there is no evidence of whether this photo would affect buyers' trust even when information on the seller's reputation score is available. Our research seeks to fill this void in the literature, and tests whether the perception of sellers' trustworthiness, based on their photos, affects the consumption of online services, such as apartment rentals on Airbnb.

In order to evaluate the effect of perceived trustworthiness of the hosts from their photos we control for the hosts' attractiveness, as previous studies suggested that attractiveness yield economic benefits. For example, workers of above-average beauty earn approximately 10%–15% more than workers of below-average beauty, a phenomenon that has been labeled the "beauty premium" (Hamermesh & Biddle, 1993). Wilson and Eckel (2006) ran a version of a trust game in which trustors viewed the trustees' faces, and found that attractive trustees were perceived as more trustworthy. Consequently, we account in our research for the hosts' attractiveness as perceived by their photos in addition to their perceived trustworthiness.

## 4. Study 1: the effect of visual-based trust and reputation on listing prices on Airbnb

Study 1 is designed to evaluate whether visual-based trust (perceived by viewing the host's photo) affects the market price of Airbnb listings. We contend that in P2P accommodation markets such as Airbnb, an increase in consumers' choice of a listing is influenced by the listing's attributes, and reflected in its increased price. In a related study, Chevalier and Mayzlin (2006) analyzed online book markets such as Amazon.com and showed that an increase in positive reviews led to an increase in sales. They suggest that changes in sales volume reflect differences in the books' attributes, since the quantity of books can be considered unlimited and the price is relatively constant. This is not the case for Airbnb, where supply is fixed. A space can be rented at most 365 nights a year, or even fewer nights if the host blocks some available days due to personal reasons. Thus, an increase in demand due to a trustworthy photo or positive reviews might not be reflected in additional sales, but rather in a higher price. That is, the host, realizing that there is excess demand for the space she is renting, might decide to increase the price since she cannot increase the number of nights sold. Thus, the hedonic price model is the preferable framework to use in analyzing the impact of trust and reputation in the Airbnb market.

Our dataset consists of a snapshot of all listings available in the city of Stockholm as of June 25, 2014. We chose Stockholm because in the ensuing two experiments we used photographs of Swedish actors and did not want to create dissonance between the hosts and the location. The dataset includes 395 posted listings, of which 185 received guest reviews. Our analysis focuses only on the listings that were reviewed, as this is the only indication in the data that the apartments were indeed rented to guests, so their stated prices reflect actual transactions, rather than the unrealistic wishes of new sellers in the market. We also excluded ten listings that did not post the hosts' photos.

For each listing, we recorded all attributes available, including the host's asking price, the number of online reviews and the average scores of those reviews, the nature of the space (entire apartment, private room, or shared room), the number of bedrooms, the host's gender, and the main photos of the apartment and its host.

In order to evaluate the perceived attractiveness of each apartment based on its main photo, we hired 260 workers (i.e., participants) on Amazon Mechanical Turk (Mturk) from the United States and Canada. Mturk is a popular crowdsourcing website in which individuals ("workers") perform "Human Intelligence Tasks" (HITs) for other individuals or businesses ("employers") in exchange for money. Mturk has been widely used for conducting online surveys and behavioral experiments (Horton, Rand, & Zeckhauser, 2011). In our study, each apartment photo was examined by 20 MTurk workers who responded to the question: "Would you choose to spend a night in the lodging shown in the picture?" Similarly, in order to rate the perceived trustworthiness and perceived attractiveness of each host, we hired 640 additional MTurk workers. Twenty workers examined each host photo and responded to the questions: "How trustworthy is the person in the picture?" and "How attractive is the person in this picture?" The photos were presented outside the context of the Airbnb website, so their raters were not aware that the photos were related to Airbnb. We computed the median scores for each variable of these three measures to reduce the potential impact of outliers, and merged them with the original dataset.

### 4.1. Results

Table 1 presents the results of the regression of log of price on the median score of trustworthiness of the host as reflected in his or her personal photo and review scores, while the rest of the variables control for all other attributes of the listing. The results reveal a significant positive effect of the perceived trustworthiness of the host according to her photo on listing price. Specifically, an increase in one unit of the visual-based trust score (scale of ten) leads to an increase of approximately seven percent in the price of the listing.

Surprisingly, there was no confirming evidence in the data for the effect of reputation on consumers. The online review scores were not found to lead to price increase. Further analysis suggests that the null effect of reputation results from the lack of variance of the review scores in the data. We will elaborate on this point in the discussion section of this study. In addition, we found no evidence for a beauty premium, as the host's perceived attractiveness did not result in a significant price premium. Nevertheless, we found the interaction between visual-based trust and attractiveness (Model (4)) to be significant and negative. The interpretation of this interaction is that attractiveness moderates the effect of visual-based trust on prices: i.e., the more attractive the host, the less visual-based trust affects her listing's price. We did not find a significant effect of gender on price.

An examination of the listing's attributes reveals that, as expected, price increases if the listing features an entire apartment (rather than a private or shared room). Price also increases with the apartment's size (i.e., 'no. of rooms') and with the level of attractiveness of the living space as perceived from its photo (i.e., 'apartment score').

**Table 1**
Hedonic price analysis of Airbnb listings in Stockholm.

| | (1) log(price) | (2) log(price) | (3) log(price) | (4) log(price) |
|---|---|---|---|---|
| Visual-based trust | 0.0690** (0.030) | | 0.0765** (0.032) | 0.284** (0.124) |
| Review score | 0.0050 (0.014) | 0.0023 (0.015) | 0.0047 (0.014) | 0.0089 (0.015) |
| Host attractive | | 0.0044 (0.024) | −0.0164 (0.025) | 0.218 (0.138) |
| Trust*attract | | | | −0.0375* (0.022) |
| Entire apartment | 0.561** (0.273) | 0.501* (0.276) | 0.577** (0.275) | 0.582** (0.273) |
| Private room | −0.0445 (0.275) | −0.0859 (0.278) | −0.0388 (0.275) | −0.0337 (0.274) |
| No. of bedrooms | 0.153*** (0.050) | 0.171*** (0.050) | 0.149*** (0.050) | 0.156*** (0.050) |
| Apartment score | 0.0344** (0.017) | 0.0319* (0.017) | 0.0351** (0.017) | 0.0351** (0.017) |
| No. of reviews | 0.00076 (0.002) | 0.00158 (0.002) | 0.0005 (0.002) | 0.0001 (0.002) |
| Gender | 0.0925 (0.067) | 0.0412 (0.066) | 0.0854 (0.068) | 0.0738 (0.068) |
| Constant | 4.796*** (0.366) | 5.272*** (0.330) | 4.841*** (0.372) | 3.542*** (0.836) |
| *N* | 175 | 175 | 175 | 175 |
| $R^2$ | 0.46 | 0.44 | 0.46 | 0.47 |

Standard errors in parentheses.
*$p < 0.10$, **$p < 0.05$, ***$p < 0.01$.

### 4.2. Discussion

The results of Study 1 show that the perceived trustworthiness of the host based on viewing her photo significantly affected the listing prices on Airbnb. As we hypothesized, the more trustworthy the host is perceived to be according to her photo, the higher her listing's price. Yet, to our surprise, we did not find an effect of the review scores on the listing's price. Indeed, the observation that review scores are uncorrelated with listing prices seems to contradict previous findings from similar traditional online markets (e.g., booking.com) that showed that review scores affect prices (Yacouel & Fleischer, 2012). To further explore this finding, we ran an additional analysis that revealed an unexpected low variance in the online review scores on Airbnb. More specifically, the review scores were found to be astonishingly high: 97% of the hosts received review scores between 4.5 and 5 stars (out of 5).

Given these observations, we were interested in evaluating whether the exceptionally high scores on Airbnb reflected a general phenomenon, or were unique to Stockholm (e.g., it is possible that Swedish people are exceptional hosts). For this purpose, we evaluated five other large European cities, and compared the mean review scores of hotels listed on Booking.com with those of Airbnb hosts in each city. The results, presented in Table 2, reveal a consistent gap of approximately 20% in the average score per city in favor of Airbnb listings. Furthermore, over 90% of Airbnb hosts in all five cities received 4.5 to 5 stars (the site presents the review scores ranging from 1 to 5 stars, with intervals of 0.5), hardly distinguishable scores. Thus, it seems that the inflated reputation and its lack of variance are not unique to the city of Stockholm, but might represent a more general phenomenon on Airbnb. Similar results were found by Zervas et al. (2014) by comparing reviews on Airbnb and TripAdvisor. This result is intriguing given the need for reliable reputation information, especially in sharing economy platforms.

The observation that online review scores on Airbnb are extremely high suggests that guests might not be able to distinguish between hosts based on their reputation (review scores). Thus, guests' use of hosts' personal photos as a trust signal may be facilitated by the failure of the online review scores to allow guests to distinguish between hosts. Alternatively, the hosts' photos affect guests even in the presence of distinguishable review scores. These questions are assessed in the following experiments.

## 5. Study 2: experimental tests of the effect of the host's perceived trustworthiness on guests' choice of listing

The hedonic price analysis in Study 1 shows that the price of a listing is associated with level of trustworthiness as perceived from the host's photo. The current study, which consists of two related discrete choice experiments, further explores this relationship. In this study, we simulated choice on Airbnb and manipulated the host's perceived trustworthiness in a fully controlled environment to test the proposed causal relationship between visual-based trust and choice. In the first experiment (2.1) we held the review scores constant and at their maximal value, similarly to the reviews we observed in the real Airbnb data in Study 1. In the second experiment (2.2), we artificially varied the review scores in order to test whether such variation would alter the effect of visual-based trust on guests' choices.

### 5.1. Pre-tests and construction of the experimental stimuli

The manipulation of the perceived trustworthiness of the hosts' photos in experiments 2.1 and 2.2 required pre-tests in which we allowed individuals to evaluate the trustworthiness and attractiveness of unfamiliar photos of people. A group of 31 undergraduate students (64% males; no gender effect was found on ratings)

**Table 2**
Comparison of average general review score for hotels listed on Booking.Com and apartments listed on Airbnb.

| City | Booking.com | | | | Airbnb | | | | % Difference in review scores |
|---|---|---|---|---|---|---|---|---|---|
| | Number of hotels | Average review scores (S.D.) | Min. | Max. | Number of listings | Average[a] review scores (S.D.) | Min. | Max. | |
| Paris | 1126 | 7.67 (0.67) | 4.6 | 9.2 | 716 | 9.32 (0.31) | 6.0 | 10.0 | 22% |
| London | 659 | 7.51 (0.73) | 4.8 | 9.3 | 725 | 9.39 (0.30) | 7.0 | 10.0 | 25% |
| Barcelona | 443 | 7.83 (0.54) | 6.0 | 9.1 | 691 | 9.32 (0.30) | 6.0 | 10.0 | 19% |
| Vienna | 254 | 7.98 (0.56) | 6.2 | 9.2 | 563 | 9.46 (0.34) | 5.0 | 10.0 | 19% |
| Berlin | 584 | 7.93 (0.60) | 6.0 | 9.4 | 701 | 9.46 (0.29) | 7.0 | 10.0 | 19% |

[a] On Airbnb, the review scores range between 1 and 5 stars, with intervals of half a star. For the sake of comparison to the review scores on Booking.com, we multiplied each review score by 2.

rated 70 portrait photographs according to their perceived trustworthiness and attractiveness. We used a database of photographs of 70 amateur actors, 35 females and 35 males between 20 and 30 years of age (Lundqvist, Flykt, & Öhman, 1998). In the pictures, all actors wore gray T-shirts, had no beards or mustaches, and wore no earrings, eyeglasses, or visible makeup. All the photographs were frontal headshots of individuals with smiling expressions. The students examined the 70 photos in different blocks, assessing each perceived trait separately. All questions were measured by an 11-point Likert scale with a range from 0 to 10. The order of blocks was randomized, as was the order of photos within each block.

For the two experiments, we selected the photos whose average rating scores of trustworthiness and attractiveness were the highest and the lowest in the pre-test. For each perceived trait, trustworthiness and attractiveness, we selected the two photos (male and female) perceived as the most positive and most negative for that trait. Since each photo received both scores, the experiments included not only photos with high and low scores, but also photos with non-extreme scores. That is, if a photo was selected for the experiments because it received the highest attractiveness score, its score in terms of trustworthiness was not necessarily the highest.

In addition to constructing the hosts' photos, we constructed the stimuli for the suggested apartments using a similar procedure. A different group of 21 students (52% males) evaluated the main pictures of 39 rooms taken randomly from the Airbnb site in Stockholm. For each picture, they were asked to answer the question: "To what degree would you like to spend a night in the room that appears in the picture?" Their responses were graded on a Likert scale from 0 (not at all) to 10 (very much). The pictures were randomly ordered. In order to control for the possible impact of the apartments' attractiveness on choice (e.g., as demonstrated in Study 1), we selected six photos with similar ranking for the experiments.

### 5.2. Experiment 2.1: the effect of host trustworthiness on choice when review scores have maximal values

The experiment was designed to test the impact of features of the host's photo on the guest's choice of a listing when all hosts received maximal review scores, similarly to what we found in the Stockholm apartment database from Study 1 (see Fig. 1). We constructed the experiment using the Airbnb website design, which included a large photo of the host on the main listing screen, as it appeared during the study period. We designed a choice set in an attempt to simulate the choice a potential guest faces when seeking to rent accommodation in the travel destination (Stockholm, Sweden, in our case). A screen divided into four windows presented the choice set. Three windows presented different rental apartment options (i.e., Airbnb listings), and the fourth presented the alternative option of renting a room in a hotel rather than choosing a listing (see Fig. 1 for an example). The hotel was added as an opt-out option in order to avoid forcing participants to choose an apartment. The following information was presented for each apartment: a photo and first name of the host, price in NIS, a photo of the apartment, a short description of the apartment, and guests' average review score. In the window of the hotel option, instead of the host photograph, the Best Western hotel logo was posted.

Each of the three apartment photos in each choice set was paired with a descriptive text that was randomly allocated to the different listings. The textual descriptions depicted basically the same information, but in different words. The guest review scores were fixed on five stars in all of the options.

The experimental design used the full factorial principle with all possible combinations of photos and price levels. The estimated coefficients were used as priors in the design of Experiment 2.2 in order to achieve a more efficient design. The combinations were randomly allocated to the choice sets, and no alternative was dominated by any other alternative in the set. The price varied between NIS 430 and NIS 670 in intervals of 40, based on actual prices from the Airbnb website in Stockholm. The 12 host photos chosen in the pretest, together with the seven price levels, resulted in 28 choice sets. The option of the hotel was fixed throughout all the choice sets, with a price of NIS 620 (average price of a three-star hotel in Stockholm).

Participants (N = 566) were drawn from a custom online panel consisting of approximately 120,000 pre-screened respondents in Israel who expressed willingness to participate in surveys and online experiments. From this panel, we screened participants who have used the Internet in the past to book or seek information on travel accommodation, by using a pre-survey that included several questions to mask the screening variable (booking online). Members of the sample, chosen specifically for this study, were invited to participate in an online experiment in which they were asked to choose their preferred option of accommodation for one night in Stockholm. Each participant was presented with two different choice sets, one at a time, and the order of the two sets was counterbalanced between participants (no order effects were found). Thus, each choice set was evaluated by 40 participants (with the exception of six sets that were evaluated by 41 participants).

#### 5.2.1. Mixed logit

The probability of an individual choosing a specific alternative from the menus can be estimated using different discrete choice models. The mixed logit seems to be the one most suitable for our purposes, since it does not suffer from the well-known independence of irrelevant alternatives (IIA) and, most importantly for our case, accommodates heterogeneity in preferences across individuals. The coefficients Gender, Hotel Dummy, and Price can logically take either sign. For example, some people might prefer a female host and others a male host. Usually, the sign of a price is expected to be negative. However, given the uncertainty regarding the quality of the lodgings, individuals can take price to be a signal for quality (Rao & Monroe, 1989). Thus, it is possible that the coefficient of Price in this case would be positive as well for some individuals. The mixed logit model and its underlying theory are well established in the literature (Train, 1986). For the sake of conciseness, we chose not to present its specifications here.

#### 5.2.2. Results

Table 3 presents the results of the mixed logit analysis, which estimates the effect of the visual-based trustworthiness and attractiveness of the hosts, based on their photos, on the probability that their listing will be selected. We did this while controlling for other seller and product attributes. We assessed the effect of each of these target variables separately (Models 2.1, 2.2), jointly (Model 2.3), and also considered their potential interaction (Model 2.4). We assumed their coefficients to be fixed, as there is no reason to assume that the likelihood of choosing an apartment increases as the ranking of these two attributes diminishes. Nevertheless, we tested this assumption by estimating the mixed logit model while allowing the coefficients of these two variables to be random. The standard deviation of both coefficients was not significantly different from zero, supporting our assumption.

The rest of the variables control for other attributes. Although we chose closely ranked apartment photos and their descriptive texts, we used dummy variables for the apartments' photos to fully control for them. Price, host gender, and the hotel dummy are also

**Table 3**
Mixed logit estimation of choice in listings in Experiment 2.1.

| Attribute | Model 2.1 | | Model 2.2 | | Model 2.3 | | Model 2.4 | |
|---|---|---|---|---|---|---|---|---|
| | Mean Coeff. (SE) | SD of Coeff. (SE) | Mean Coeff. (SE) | SD of Coeff. (SE) | Mean Coeff. (SE) | SD of Coeff. (SE) | Mean Coeff. (SE) | SD of Coeff. (SE) |
| **Fixed coefficients** | | | | | | | | |
| Visual-based trust | 0.167* (0.03) | – | – | – | 0.122* (0.05) | – | 0.313* (0.13)[b] | – |
| Host attractive | – | – | 0.126* (0.03) | – | 0.056* (0.04) | – | 0.327* (0.17)[b] | – |
| Trust*attract | – | – | – | – | – | – | −0.041[a] (0.02)[b] | – |
| Apartment 1[a] | 0.495* (0.19) | – | 0.509* (0.19) | – | 0.494* (0.18) | – | 0.442* (0.19) | – |
| Apartment 2 | 0.662* (0.18) | – | 0.630* (0.18) | – | 0.638* (0.18) | – | 0.569* (0.18) | – |
| Apartment 3 | 0.172 (0.18) | – | 0.194 (0.18) | – | 0.162 (0.17) | – | 0.079 (0.18) | – |
| Apartment 4 | −0.185 (0.18) | – | −0.121 (0.18) | – | −0.163 (0.18) | – | −0.189 (0.18) | – |
| Apartment 5 | −0.658* (0.19) | – | −0.568* (0.19) | – | −0.635* (0.19) | – | −0.658* (0.19) | – |
| **Random coefficients** | | | | | | | | |
| Price | −0.016* (0.002) | 0.016* (0.002) | −0.015* (0.001) | 0.015* (0.002) | −0.015* (0.005) | 0.015* (0.002) | −0.016* (0.001) | 0.016* (0.002) |
| Gender (male = 1) | −0.511* (0.12) | 0.675* (0.33) | −0.440* (0.12) | 0.682* (0.32) | −0.476* (0.12) | 0.689* (0.32) | −0.520* (0.12) | 0.676* (0.32) |
| Hotel Dummy | 1.374* (0.39) | −2.581* (0.37) | −0.917* (0.34) | −2.648* (0.32) | 1.383* (0.39) | −2.60* (0.37) | 2.468* (0.80) | −2.58* (0.37) |
| **Share of negative coefficients in population implied by estimation** | | | | | | | | |
| Price | 0.84 | | | | | | | |
| | | 0.84 | | 0.84 | | 0.84 | | |
| Gender (male = 1) | 0.78 | | | | | | | |
| | | 0.74 | | 0.75 | | 0.77 | | |
| Hotel Dummy | 0.30 | | | | | | | |
| | | 0.36 | | 0.29 | | 0.17 | | |

*Significant at 5%.
[a] Apartment 6 is the reference apartment.
[b] The partial effect of Trustworthiness was calculated to be 0.117 at the mean of Attractiveness and the partial effect of Attractiveness was calculated to be 0.0717 at the mean of Trustworthiness. Both coefficients were found to be significantly different than zero.

important controls and were all assumed to have random coefficients.

The results of Models 2.1–2.4 reveal that visual-based trust significantly affects choice in our experiment; the higher it was ranked, the higher the likelihood of the listing to be chosen, holding other attributes constant. The host's attractiveness was also found to affect choice in a similar way, yet it was found to play a relatively minor role in comparison to visual-based trust. The coefficient of the latter in Model 2.3 is more than double that of the former.

Model 2.4 presents the estimation results with the interaction effect between the host's perceived trustworthiness and attractiveness. The negative significant coefficient of the interaction variable replicates the interaction effect found in our Airbnb field examination in Study 1. The negative coefficient implies, as expected, a positive relationship between these two attributes. That is, the perceived trustworthiness of the host is less important for a very attractive host than for a less attractive host, and similarly, attractiveness is less important for a trustworthy host than for a less trustworthy one.

Similarly to Study 1, we controlled for the perceived attractiveness of the different apartments. This time we did so by including them as dummy variables in the mixed logit analysis (variables Apartment 1–Apartment 5, which refer to the preference of each apartment over Apartment 6). The analysis shows that while apartments differ somewhat in their perceived attractiveness, perceived host trustworthiness and attractiveness affect choice despite these differences.

The estimated coefficients of the other control variables reveal some interesting additional findings. The results in all four models are similar, so we discuss here mainly those of Model 2.3. First, we assessed the assumption that the coefficients of Price, Gender, and Hotel can take both signs. The standard deviation of all three variables is significantly different than zero, supporting this assumption. Second, the mean and standard deviation of these three variables provided us with information regarding the share of the experiment's participants that has a positive coefficient and the share that has a negative coefficient. The share of the participants that has a negative sign for each variable is presented at the bottom of Table 4. These results imply that 75 percent of the participants prefer a female host over a male host, approximately 70 percent (or 83 percent with the interaction effect) prefer hotels, and approximately 15 percent prefer higher price, perhaps interpreting price as a signal of quality.

### 5.3. Experiment 2.2: the effect of host trustworthiness on choice when review scores are informative (i.e., have different values)

Study 1 and Experiment 2.1 revealed that visual-based trust affects both the market price of listings on Airbnb (Study 1) and consumer's choices (Experiment 2.1). Furthermore, the analysis of Airbnb's actual data in Study 1 demonstrated that reputation had no effect on the listings' prices. We suspected that the explanation for reputation's null effect might be the lack of variance in the very high online review scores.

Experiment 2.2 was designed to expand Experiment 2.1 and assess the role of reputation on consumers' choice if the reputation scores were distinguishable. Thus, Experiment 2.2 is similar to Experiment 2.1, but includes meaningful variation that we forced into the review scores. If reputation was found to affect choice in this setting, it would support our hypothesis that its null effect in the actual Airbnb website resulted from its lack of variance. Furthermore, it seemed interesting to assess whether the impact of visual-based trust was affected by varied reputation score. More specifically, one plausible assumption is that people rely on the hosts' photos merely because they cannot distinguish between offers based on reputation. Thus, one may assume that when reputation is meaningful, i.e., includes variance, consumers do not pay attention to the hosts' photos and the effect of visual-based trust on demand disappears. The current experiment aimed to assess these very questions.

#### 5.3.1. Experimental method

The current study used a design similar to that of Experiment 2.1, and employed the same stimuli of host and apartment photos.

**Table 4**
Experiment 2.2 – mixed logit estimation (includes data from the two experiments).

| Attribute | Model 3.1 | | Model 3.2 | | Model 3.3 | | Model 3.4 | |
|---|---|---|---|---|---|---|---|---|
| | Mean Coeff. (SE) | SD of Coeff. (SE) | Mean Coeff. (SE) | SD of Coeff. (SE) | Mean Coeff. (SE) | SD of Coeff. (SE) | Mean Coeff. (SE) | SD of Coeff. (SE) |
| **Fixed coefficients** | | | | | | | | |
| Visual-based trust | 0.102* (0.03) | – | – | – | 0.058* (0.04) | – | 0.238* (0.11) | – |
| Review score | 0.256* (0.13) | – | 0.218* (0.13) | – | 0.247* (0.13) | – | 0.306* (0.13) | – |
| Host attractive | – | – | 0.083* (0.02) | – | 0.052* (0.03) | – | 0.304* (0.14) | – |
| Trust*attract[a] | – | – | – | – | – | – | −0.039* (0.02) | – |
| Logo | 0.457 (0.34) | | 0.455 (0.34) | | 0.444 (0.34) | | 0.448 (0.330) | |
| Apartment 1 | 0.359* (0.14) | – | 0.403* (0.14) | – | 0.379* (0.14) | – | 0.322* (0.14) | – |
| Apartment 2 | 0.510* (0.14) | – | 0.529* (0.14) | – | 0.510* (0.14) | – | 0.454* (0.14) | – |
| Apartment 3 | 0.323* (0.13) | – | 0.357* (0.13) | – | 0.342* (0.13) | – | 0.265* (0.13) | – |
| Apartment 4 | −0.182 (0.14) | – | −0.120 (0.14) | – | −0.144 (0.14) | – | −0.188 (0.14) | – |
| Apartment 5 | −0.508* (0.15) | – | −0.443* (0.15) | – | −0.475* (0.15) | – | −0.505* (0.15) | – |
| **Random coefficients** | | | | | | | | |
| Price | −0.012* (0.001) | 0.012* (0.001) | −0.013* (0.001) | 0.012* (0.001) | −0.013* (0.001) | 0.012* (0.001) | −0.012* (0.001) | 0.011* (0.001) |
| Gender (male = 1) | −0.306* (0.08) | 0.189 (0.47) | −0.290* (0.08) | 0.169 (0.47) | −0.288* (0.08) | 0.161 (0.49) | −0.329* (0.08) | 0.151 (0.48) |
| Hotel Dummy | 0.170 (0.42) | 3.104* (0.32) | −0.030 (0.39) | 3.116* (0.32) | 0.192 (0.42) | 3.111* (0.32) | 1.215* (0.70) | 3.10* (0.32) |
| **Share of negative coefficients in population implied by estimation** | | | | | | | | |
| Price | 0.85 | | 0.86 | | | | | |
| | | | | | 0.86 | | 0.86 | |
| Gender (male = 1) | 0.95 | | 0.96 | | | | | |
| | | | | | 0.96 | | 0.98 | |
| Hotel Dummy | 0.48 | | 0.51 | | | | | |
| | | | | | 0.48 | | 0.35 | |

* Significant at 5%.
[a] The partial effect of Trustworthiness was calculated to be 0.12 at the mean of Attractiveness and the partial effect of Attractiveness was calculated to be 0.07 at the mean of Trustworthiness. Both coefficients were found to be significantly different than zero.

As in the previous study, three options were Airbnb apartments, and the fourth (i.e., the opt-out option) was a hotel. Participants (N = 270) were recruited from the same online panel, but were different ones from those of Experiment 2.1. The current participants were also pre-screened, so the study included only people who had used the Internet to book travel accommodation.

We used the coefficients estimated in Experiment 2.1 as priors for the Bayesian efficient design used in Experiment 2.2. The attributes for the design are the 12 types of hosts from Experiment 2.1, the price (also from Experiment 2.1), and review scores (reputation). We took the prior for the latter from a different study by Yacouel and Fleischer (2012). For the online review scores, we used the star system employed by Airbnb. It is realistic to assume that listings with one or two stars probably would not be offered on Airbnb, so we used a range of between three and five stars, with intervals of half a star. This is a much wider range than the one that appears on the actual Airbnb website.

From the results of Experiment 2.1, in which the majority of participants demonstrated a liking towards hotels, we suspected that the logo of the chain we used for the hotel played an important role. In order to check this possibility, the opt-out option in this study was the same hotel option that was presented in Experiment 2.1, but with no logo (Fig. 3 shows an example of the experimental screen).

### 5.3.2. Results

The results, presented in Table 4, reveal that when online review score varies, its coefficient is positive and significant (Model 3.1–3.4). This result suggests that reputation can affect consumers on Airbnb and its null effect in the revealed data in Study 1 might result from its invariance. The results also show that visual-based trust significantly affects consumer choice even under varied reputation. A comparison between the coefficients of visual-based trust in Model 2.3 and Model 3.3 reveals a reduction in the magnitude of this variable from 0.122 to 0.058. These findings suggest that the role of visual-based trust and, more generally, the hosts' photo, diminishes in cases where reputation can really distinguish between sellers (i.e., when it has variance), but still plays a significant role in consumer decision making.

An analysis of the other control variables (price, apartments, gender, hotel dummy) reveal very similar results to the ones found in Experiment 2.1. In the current study, we removed the Best Western logo from the opt-out hotel option in order to evaluate its potential impact on preferences for hotel vs. apartments (see Fig. 2). A comparison of the preferences for the opt-out hotel option between Experiment 2.1 and Experiment 2.2 shows that preference for the hotel decreased by about 30 percent when no logo appeared. This observation seems consistent with our assumption that chain branded hotels may be more competitive with Airbnb's listings than small, non-branded ones.

## 6. General discussion

This paper was motivated by the prominent presence of sellers' photos in sharing economy marketplaces and the fact that sellers become an integral part of the purchased service in these platforms. The current analysis is the first to show the impact of visual-based trust on online transactions. It builds upon two main bodies of research: the first has documented the rise of the sharing economy markets, and the second has focused on trust inferences from facial photographs. The first line of research suggests that the tourists' need for direct interactions with the local community facilitates the use of tourism-related sharing economy markets, but increases the need for trust between the two parties (Guttentag, 2015). The extensive use of sellers' photos in sharing economy platforms is meant to satisfy consumers' need for personal contact. The second line of research evaluates different types of attribute inference that are based on facial photos (Todorov, Olivola, Dotsch, & Mende-Siedlecki, 2015). In this paper, we bridged the gap between these two unrelated bodies of research and demonstrated that prospective Airbnb customers are influenced by their impressions of hosts' photos, and make purchase decisions based on these impressions.

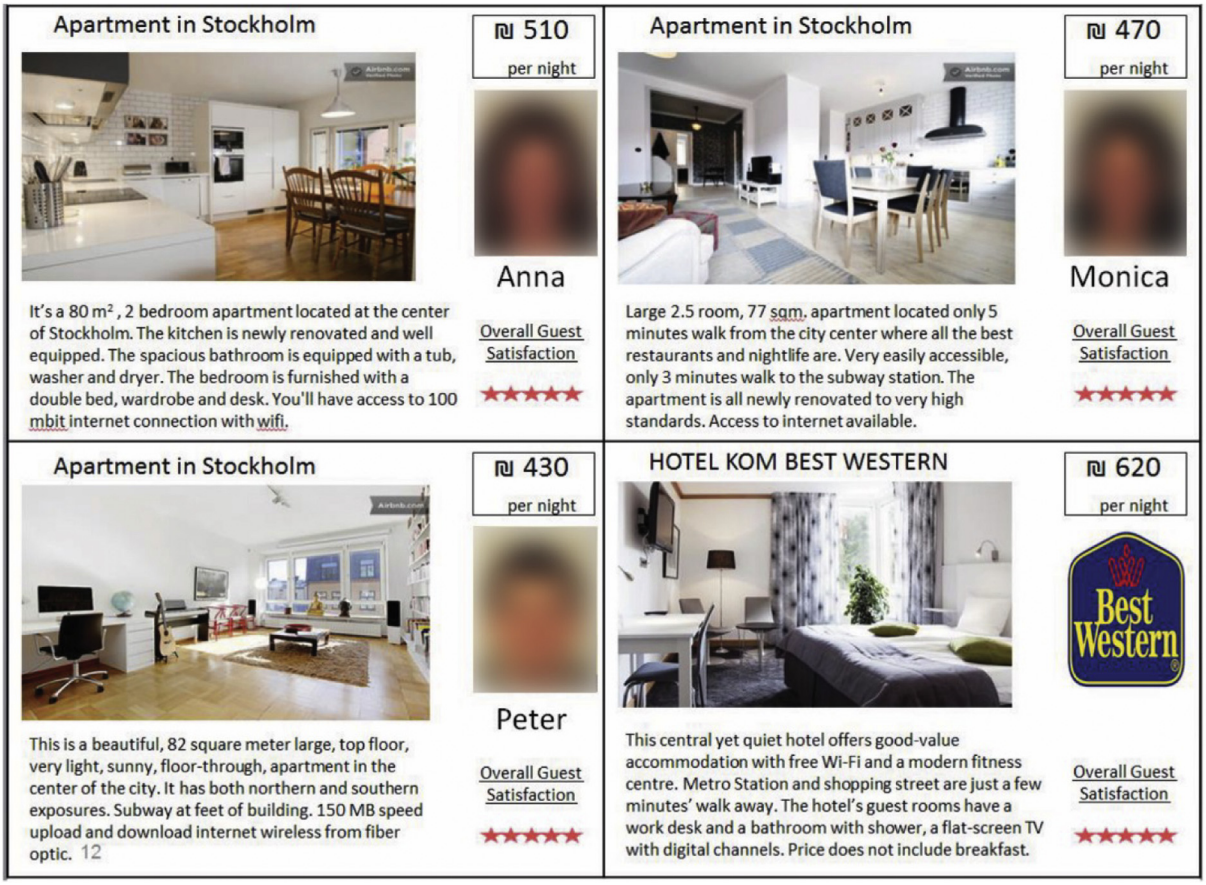



**Fig. 2.** An example of the experimental screen in Study 2.1. Real personal photos were replaced with blurred photos to maintain anonymity.

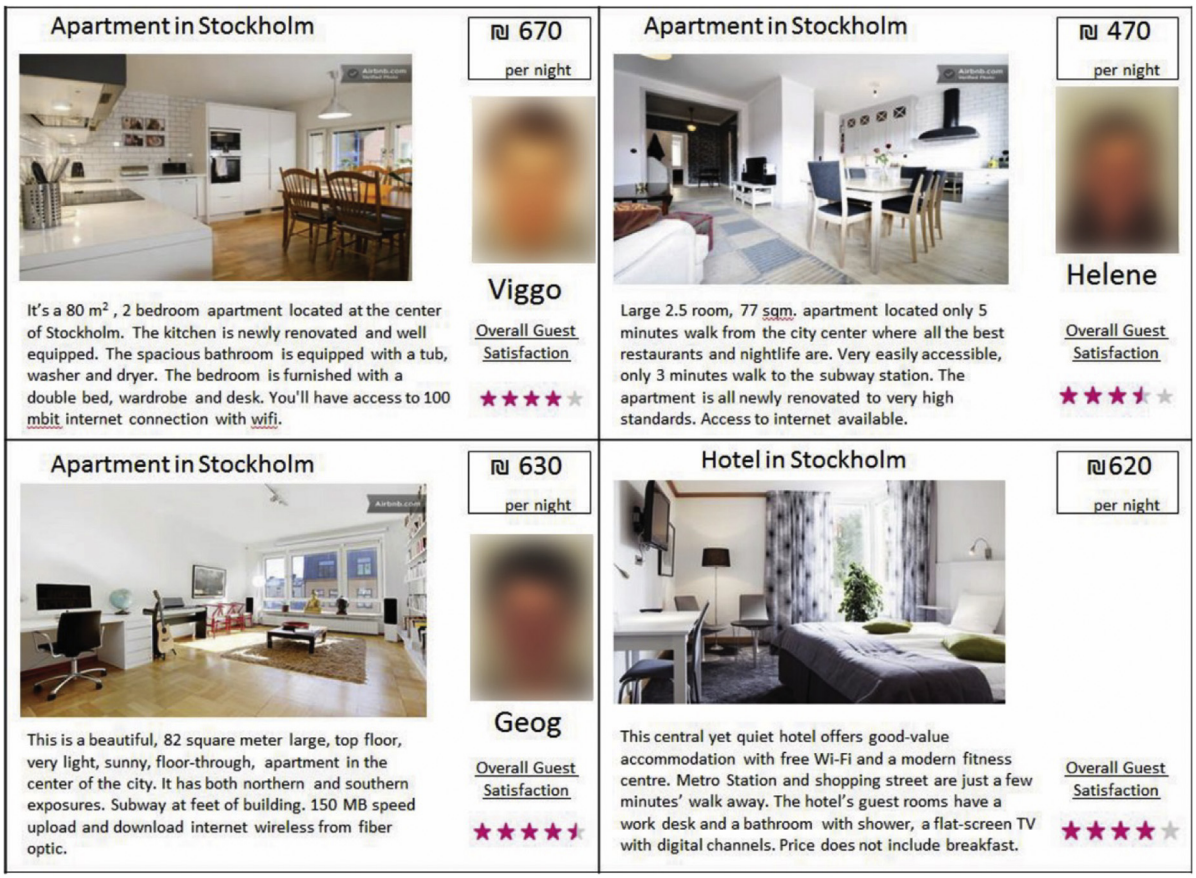
Furthermore, we found that the effect of these visual-based impressions seems more influential than the effect of reputation, at least in the case of Airbnb.

The high reliance on the personal photo as a signal of trustworthiness in the sharing economy raises many follow-up questions. For example, is this visual-based impression accurate? That is, are sellers who are perceived to be more trustworthy according to their photos indeed more trustworthy? Since reputation scores are given by experienced customers, they may provide at least a partial answer to this question. That is, a positive correlation between the perceived trustworthiness of the host according to her photo and according to her reputation score could provide an indication that the guest's judgment of the host's photo is accurate. A quick analysis of this relationship in our Study 1 reveals no correlation ($r = -0.03$, NS) between these two variables. Nonetheless, given the low variance in the reputation scores on Airbnb, one should be cautious with the interpretation of this result. Thus, the extent to which the perceived trustworthiness of hosts might be a predictor of their actual behavior in this context remains an open question.

Another interesting question is whether people are aware of the effect of the hosts' photos. It is possible that guests consciously construct an impression of the hosts' photos, but it also possible that their impression might result from an unconscious process. Initial evidence from our experiments suggests that these visual judgments might remain beyond the customers' awareness. Specifically, in a post-experiment questionnaire, only a minority (8%) mentioned the hosts' photo as a factor that influenced their choice. Also interesting is the question of hosts' awareness of the significance of their personal photos. Since this paper is based on consumer perceptions, we cannot really tell whether hosts are aware of the potential economic benefits of a "good" personal photo, but our impression is that hosts are focused on improving the photos of their homes rather than on their personal photos. Indeed, in some cases their posted portraits give the impression that they are not only untrustworthy, but sometimes even frightening. These hosts do not reap the same economic benefit from the space they rent as other hosts with better pictures.

The effect of visual-based trust on consumer choice and market price poses another natural question. Which features of the host's photo generate perceived trustworthiness, and how might these features interact? This question has not been systematically explored in the context of the sharing economy. Yet, previous studies have suggested evidence for some factors, such as smiling, that might increase perceived trustworthiness (Scharlemann et al., 2001). We suggest that analyzing the process through which visual-based trust is created would comprise an important extension of the current research for future studies.

While the effect of the host's perceived trustworthiness on guests' decisions is robust, the impact of the host's attractiveness seems less clear. In Study 1, we found no effect of the host's attractiveness on the listing price. Yet the experiments in Study 2 reveal some evidence of a "beauty premium"; attractive hosts are more likely to be chosen over less attractive ones. Nonetheless, the host's trustworthiness has a much higher impact. However, it should be noted that attractiveness and trustworthiness might affect one another (Wilson & Eckel, 2006). This means that although beauty does not have a strong direct effect on choice, it




Note: The hotel option (bottom right) is not a listing on Airbnb, but serves as the opt-out option that appears in all choice menus.

**Fig. 3.** An example of the experimental screen in Experiment 2.2. Real personal photos were replaced with blurred photos to maintain anonymity.

might work indirectly through trust.

Another interesting finding that is worth mentioning is the possibility of a gender bias. There is evidence of a preference towards female hosts. Although gender was not found to gain a price premium (Study 1), it was found to affect direct choice (Study 2). A potential reason for this difference is that the latter studies allowed for heterogeneous preferences that could not be assessed in the first study. Further studies can investigate the robustness of this finding as well as possible reasons for its occurrence.

The current paper also sheds light on the role of reputation in the presence of hosts' photos. To the best of our knowledge, the current study is the first to show potential consequences of people's tendency to provide exceptionally high review scores to sellers, a phenomenon that was also documented in other P2P marketplaces such as eBay (Bolton, Greiner, & Ockenfels, 2013; Resnick & Zeckhauser, 2002). These studies suggested that biased reputation is facilitated by the mutual feedback mechanism, implying that a buyer would think twice before posting a negative review of a seller because of the fear of retaliation (Bolton et al., 2013). During our studies, Airbnb used such a mutual mechanism and was therefore exposed to this potential bias. However, Airbnb has recently changed their review policies to eliminate the risk of retaliation. It will be interesting to evaluate in future research whether this change indeed lowered the positive review bias. We are uncertain whether this change will suffice to reduce the review bias in the sharing economy because of another core factor that distinguishes the sharing economy from the traditional P2P markets: the personal contact experience. Specifically, we assert that the personal contact during the sharing experience encourages perspective taking (Kogut, 2011); customers may show a more understanding attitude toward service failures when they have a personal acquaintance with the service provider, and therefore might refrain from providing negative reviews. Indeed, a quick analysis of numerous online comments reveals that guests on Airbnb refer to hosts on a first-name basis, whereas guests of hotels on Booking.com, usually refer to the "staff." This difference in language may reflect the difference between the perceptions of personal contact in each of these two marketplaces. Future research should assess the potential impact of these differences on feedback formation in these different markets.

## 7. Conclusion

In two complementary studies, we investigated whether personal photos of hosts on Airbnb affect consumers' decisions. Our conceptual framework suggested that consumers are affected by both product attributes (e.g., apartment size, location), and seller attributes (reputation, visual appearance). Yet while the effect of product attributes is rather obvious, consumers' responsiveness to seller attributes, mainly sellers' personal photos, has yet to be studied. The results confirm our hypotheses: we found that the level of hosts' trustworthiness, mainly as inferred from their

photos, affects listings' prices and probability of being chosen, even when all listing information is controlled for. We also found weaker evidence for hosts' benefiting from being attractive and female.

We can conclude that guests on Airbnb use not only the listing's information, but also the host's information to make their decision. The reliance on the visual cues (hosts' photos) might be facilitated by the bias of the non-visual one (hosts' reputations). Nevertheless, the finding that the personal photos continue to play a significant role even when reputation varies implies that the reliance on the visual information is robust, and that the visual (hosts' photos) and non-visual (reviews) information has an additive effect on trust building. This implies that the strong need for trust in sharing economy platforms leads consumers to use any information available to them. As we demonstrated, this information is not necessarily relevant and we are not sure if consumers use it consciously. However, sharing economy platforms must understand what consumers infer from both the visual and the non-visual information posted on their sites and should design their sites accordingly to attempt to reduce potential biases.

With the rapid growth of the sharing economy, especially in tourism-related services, there is a need to further investigate the trust mechanism upon which this economy is built. While studies conducted on reputation in e-commerce provide useful insights, their implications regarding the sharing economy might be somewhat limited, as we showed in the case of Airbnb. Different rules and consumer decision making are at play here, and a fuller examination of these is still needed to shed light on how this economy really operates.

## References


Bente, G., Baptist, O., & Leuschner, H. (2012). To buy or not to buy: influence of seller photos and reputation on buyer trust and purchase behavior. *International Journal of Human-Computer Studies, 70*(1), 1–13.

Berg, J., Dickhaut, J., & McCabe, K. (1995). Trust, reciprocity, and social history. *Games and Economic Behavior, 10*(1), 122–142. http://dx.doi.org/10.1006/game.1995.1027.

Bohnet, I., & Frey, B. S. (1999). Social distance and other-regarding behavior in dictator games: comment. *American Economic Review*, 335–339.

Bolton, G., Greiner, B., & Ockenfels, A. (2013). Engineering trust: reciprocity in the production of reputation information. *Management Science, 59*(2), 265–285.

Bonsón Ponte, E., Carvajal-Trujillo, E., & Escobar-Rodríguez, T. (2015). Influence of trust and perceived value on the intention to purchase travel online: integrating the effects of assurance on trust antecedents. *Tourism Management, 47*, 286–302. http://dx.doi.org/10.1016/j.tourman.2014.10.009.

Botsman, R., & Rogers, R. (2011). What's mine is yours: how collaborative consumption is changing the way we live. *Collins London*. Retrieved from http://appli6.hec.fr/amo/Public/Files/Docs/241_fr.pdf.

Chevalier, J. A., & Mayzlin, D. (2006). The effect of word of mouth on sales: online book reviews. *Journal of Marketing Research, 43*(3), 345–354.

Eckel, C. C., & Petrie, R. (2011). Face value. *The American Economic Review*, 1497–1513.

Edelman, B., & Luca, M. (2014). *Digital Discrimination: The Case of Airbnb.com*. Harvard Business School NOM Unit Working Paper, (14–054). Retrieved from http://www.west-info.eu/files/airbnb_research.pdf.

Engell, A. D., Haxby, J. V., & Todorov, A. (2007). Implicit trustworthiness decisions: automatic coding of face properties in the human amygdala. *Journal of Cognitive Neuroscience, 19*(9), 1508–1519.

Fitzsimons, G. M., Chartrand, T. L., & Fitzsimons, G. J. (2008). Automatic effects of brand exposure on motivated behavior: how apple makes you "think different." *Journal of Consumer Research, 35*(1), 21–35. http://dx.doi.org/10.1086/527269.

Friedman, T. L. (2014 July 19). And now for a bit of good news. *The New York Times*. Retrieved from http://www.nytimes.com/2014/07/20/opinion/sunday/thomas-l-friedman-and-now-for-a-bit-of-good-news.html.

Gefen, D., & Straub, D. W. (2004). Consumer trust in B2C e-commerce and the importance of social presence: experiments in e-products and e-services. *Omega, 32*(6), 407–424.

Glaeser, E. L., Laibson, D. I., Scheinkman, J. A., & Soutter, C. L. (2000). Measuring trust. *Quarterly Journal of Economics*, 811–846.

Guttentag, D. (2015). Airbnb: disruptive innovation and the rise of an informal tourism accommodation sector. *Current Issues in Tourism, 18*(12), 1192–1217.

Hamermesh, D. S., & Biddle, J. E. (1993). *Beauty and the labor market*. National Bureau of Economic Research. Retrieved from http://www.nber.org/papers/w4518.

Horton, J. J., Rand, D. G., & Zeckhauser, R. J. (2011). The online laboratory: conducting experiments in a real labor market. *Experimental Economics, 14*(3), 399–425. http://dx.doi.org/10.1007/s10683-011-9273-9.

Jøsang, A., Ismail, R., & Boyd, C. (2007). A survey of trust and reputation systems for online service provision. *Decision Support Systems, 43*(2), 618–644.

Kim, M.-J., Chung, N., & Lee, C.-K. (2011). The effect of perceived trust on electronic commerce: shopping online for tourism products and services in South Korea. *Tourism Management, 32*(2), 256–265. http://dx.doi.org/10.1016/j.tourman.2010.01.011.

Kogut, T. (2011). The role of perspective taking and emotions in punishing identified and unidentified wrongdoers. *Cognition & Emotion, 25*(8), 1491–1499.

Lauterbach, D., Truong, H., Shah, T., & Adamic, L. (2009). Surfing a web of trust: reputation and reciprocity on couchsurfing. com. In *Computational science and engineering, 2009. CSE'09. International conference on* (Vol. 4, pp. 346–353). IEEE. Retrieved from http://ieeexplore.ieee.org/xpls/abs_all.jsp?arnumber=5284060.

Lieber, R. (2015a). Questions about Airbnb's responsibility after attack by dog. *The New York Times*. Retrieved January 3, 2016, from http://www.nytimes.com/2015/04/11/your-money/questions-about-airbnbs-responsibility-after-vicious-attack-by-dog.html?_r=0.

Lieber, R. (2015b, August 14). Airbnb horror story points to need for precautions. *The New York Times*. Retrieved from http://www.nytimes.com/2015/08/15/your-money/airbnb-horror-story-points-to-need-for-precautions.html.

Liu, C. S. (2012). A CouchSurfing ethnography: traveling and connection in a commodified world. *Student Pulse, 4*(07). Retrieved from http://www.studentpulse.com/articles/669/a-couchsurfing-ethnography-traveling-and-connection-in-a-commodified-world.

Lundqvist, D., Flykt, A., & Öhman, A. (1998). *The Karolinska directed emotional faces*. Stockholm, Sweden: Karolinska Institute. Retrieved from ftp://klipsy.psychologie.uni-konstanz.de/Download/Johanna/KDEF/Documentation/About%20KDEF.DOC.

Oosterhof, N. N., & Todorov, A. (2008). The functional basis of face evaluation. *Proceedings of the National Academy of Sciences, 105*(32), 11087–11092.

Pizam, A. (2014). Peer-to-peer travel: blessing or blight? *International Journal of Hospitality Management, Complete, 38*, 118–119. http://dx.doi.org/10.1016/j.ijhm.2014.02.013.

Rao, A. R., & Monroe, K. B. (1989). The effect of price, brand name, and store name on buyers' perceptions of product quality: an integrative review. *Journal of Marketing Research*, 351–357.

Resnick, P., & Zeckhauser, R. (2002). Trust among strangers in Internet transactions: empirical analysis of eBay's reputation system. *Advances in Applied Microeconomics, 11*, 127–157.

Rosen, S. (1974). Hedonic prices and implicit markets: product differentiation in pure competition. *The Journal of Political Economy*, 34–55.

Rule, N. O., Ambady, N., Adams, R. B., Jr., Ozono, H., Nakashima, S., Yoshikawa, S., et al. (2010). Polling the face: prediction and consensus across cultures. *Journal of Personality and Social Psychology, 98*(1), 1–15. http://dx.doi.org/10.1037/a0017673.

Scharlemann, J. P., Eckel, C. C., Kacelnik, A., & Wilson, R. K. (2001). The value of a smile: game theory with a human face. *Journal of Economic Psychology, 22*(5), 617–640.

Sparks, B. A., & Browning, V. (2011). The impact of online reviews on hotel booking intentions and perception of trust. *Tourism Management, 32*(6), 1310–1323. http://dx.doi.org/10.1016/j.tourman.2010.12.011.

Sundararajan, A. (2014). *Peer-to-peer businesses and the sharing (collaborative) economy: Overview, economic effects and regulatory issues. Written testimony for the hearing titled the power of connection: Peer to peer businesses, January*. Retrieved from http://smallbusiness.house.gov/uploadedfiles/1-15-2014_revised_sundararajan_testimony.pdf.

Todorov, A., Olivola, C. Y., Dotsch, R., & Mende-Siedlecki, P. (2015). Social attributions from faces: determinants, consequences, accuracy, and functional significance. *Annual Review of Psychology, 66*(1), 519–545.

Todorov, A., Pakrashi, M., & Oosterhof, N. N. (2009). Evaluating faces on trustworthiness after minimal time exposure. *Social Cognition, 27*(6), 813–833.

Tussyadiah, I. P. (2015). An exploratory study on drivers and deterrents of collaborative consumption in travel. In *Information and communication technologies in tourism 2015* (pp. 817–830). Springer. Retrieved from http://link.springer.com/chapter/10.1007/978-3-319-14343-9_59.

Tussyadiah, I. P., & Pesonen, J. (2015). Impacts of peer-to-peer accommodation use on travel patterns. *Journal of Travel Research*, 0047287515608505.

Wang, Y., & Vassileva, J. (2007). A review on trust and reputation for web service selection. In *Distributed computing systems workshops, 2007. ICDCSW'07. 27th International Conference on*. IEEE, 25–25, Retrieved from http://ieeexplore.ieee.org/xpls/abs_all.jsp?arnumber=4279021.

Wilson, R. K., & Eckel, C. C. (2006). Judging a book by its cover: beauty and expectations in the trust game. *Political Research Quarterly, 59*(2), 189–202.

Yacouel, N., & Fleischer, A. (2012). The role of cybermediaries in reputation building and Price premiums in the online hotel market. *Journal of Travel Research, 51*(2), 219–226.

Zebrowitz, L. A., Voinescu, L., & Collins, M. A. (1996). "Wide-Eyed" and" Crooked-Faced": determinants of perceived and real honesty across the life span. *Personality and Social Psychology Bulletin, 22*(12), 1258–1269.

Zeithaml, V. A., Bitner, M. J., & Gremler, D. D. (2006). *Services marketing: Integrating customer focus across the firm*. Retrieved from http://library.wur.nl/WebQuery/clc/1809666.

Zervas, G., Proserpio, D., & Byers, J. W. (2014). *The rise of the sharing economy: Estimating the impact of Airbnb on the hotel Industry*. Boston U. School of Management Research Paper. Retrieved from http://people.bu.edu/zg/publications/airbnb.pdf.

**Eyal Ert** is a Senior Lecturer in the department of Environmental Economics and Management, and in the Hospitality, Food Resources, and Tourism Program at the Hebrew University of Jerusalem. His interests involve behavioral decision research, experimental economics, and tourism. His research work is published in a range of international journals in the fields of tourism, psychology, economics and management. He is also on the editorial board of several journals.

**Aliza Fleischer**, Yekutiel X. Federmann Professor of Hotel Management, the Department of Environmental Economics and Management and is the Head of the Hospitality, Food Resources and Tourism Management Program at the Hebrew University of Jerusalem. Her research interests involve tourism and natural resource economics. Her research work is published in a range of international journals in the fields of tourism, environmental and agricultural economics. She is also on the editorial board of several journals.

**Nathan Magen** is a graduate student in the department of Environmental Economics and Management at the Hebrew University of Jerusalem.