NO ROOM AT THE INN?
DISABILITY ACCESS IN THE NEW SHARING ECONOMY

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ABSTRACT

People with disabilities have a history of social exclusion. The rise of Internet-based platforms for some services threatens to perpetuate and possibly increase their exclusion, both because people with disabilities are less likely to have Internet access, and because many of the newly-available services are not fully accessible and may create more opportunities for the practice of both intentional and unintentional discrimination. It remains unclear whether companies such as Uber, Lyft, and Airbnb are covered by the Americans with Disabilities Act (ADA), and the expansion of such services potentially creates a new realm of unregulated activity that blurs the boundaries between public and private space and may undermine the principle of equal access to goods and services.

We investigate access for people with disabilities to Airbnb rentals using a randomized field experiment of 3,847 lodging requests made between June and November, 2016. We created profiles of people with four types of disabilities that may require accommodations: blindness, cerebral palsy, dwarfism, and spinal cord injury. The key findings are:

- Hosts were less likely to preapprove, and more likely to reject outright, the requests from travelers with disabilities than requests from travelers without disabilities. The preapproval rate was 75% for travelers without disabilities, compared to 61% for travelers with dwarfism, 50% for travelers with blindness, 43% for travelers with cerebral palsy, and 25% for travelers with spinal cord injury.

- The host responses did not vary significantly by whether the response was made before or after Airbnb required all users to agree to a new non-discrimination policy on September 8, 2016.

- The disability gaps in preapprovals for travelers with cerebral palsy or spinal cord injury appear to be smaller but not eliminated among listings advertised as "wheelchair accessible," although the power of the comparisons is limited by the small number of hosts in this group.

The findings raise questions about the reach of the ADA, which applies to hotels and some Airbnb hosts but not to lodgings that are owner-occupied with fewer than 6 units available for rent. While many Airbnb hosts expressed great sympathy and willingness to consider accommodating guests with disabilities, the overall results indicate that this new institutional form creates substantial challenges in ensuring equal access for people with disabilities.

1. INTRODUCTION

People with disabilities have experienced an extended history of marginalization and social exclusion. The United States sought to address this with the passage of the 1990 Americans with Disabilities Act (ADA), which was modeled on the 1964 Civil Rights Act (CRA) that prohibits discrimination based on race, color, religion, sex, or national origin. In addition to prohibiting discriminatory behavior based on disability, the ADA's Title III provision further requires that an institution open to the public "make reasonable modifications in policies, practices, and procedures to accommodate individuals with disabilities" unless this would "'fundamentally alter' the goods, services, or operation of the public accommodation."[1] The ADA has expanded access to traditional public accommodations such as stores, hotels, museums, schools, sports venues, restaurants, and public transportation.

New technological and economic developments, however, pose challenges to equal access. The growth of the "sharing economy" provides greater opportunities for individuals to exchange goods, assets, and services on Internet-based platforms like those of Uber, Lyft, TaskRabbit, and Airbnb. These platforms are founded on social networks in which individuals and communities collaborate and exchange with one another via intermediaries. The once relatively passive consumer who often participated in the one-directional industrial and service economy (e.g., business-to-customer) is consequently becoming more collaborative in arranging the production and consumption of assets that are privately owned (Botsman and Rogers 2010). The platform economy empowers individuals to think differently about the operation of private assets (e.g., sharing a home, space, and vehicle), and thus has increased income opportunities for many people.

[1] https://www.ada.gov/t3hilght.htm.

This more decentralized model of mediated exchange has potential benefits for participants, but it may also create opportunities for both intentional and unintentional discrimination. Although the organizations operating these peer-to-peer platforms through which exchanges take place may not be engaging in discrimination, the participants may be doing so, thereby undermining anti-discrimination laws and the principle of equal access to goods and services. This danger is illustrated by the evidence that Airbnb hosts are less likely to offer lodging to guests with black-sounding names compared to those with white-sounding names, which has led to the creation of Airbnb's stricter nondiscrimination policy (Edelman, Luca, & Svirsky forthcoming).

Access to Internet-based platforms, along with new information technologies in general, can provide benefits to people with disabilities (e.g., allowing deaf people to easily communicate over the Internet). At the same time, such technologies also pose significant challenges for many people with disabilities. Depending on how disability is identified, there are between 39.7 million and 56.7 million Americans with disabilities, representing about one-eighth to one-fifth (12.6% to 18.7%) of the population.[2] One basic challenge confronting people with disabilities in accessing the sharing or platform economy is that they are less likely to have Internet access: only 63.8% live in homes with Internet access compared to 81.1% of people without disabilities (File and Ryan 2014). Another challenge they can face is direct discrimination by service providers, given the well-documented history of stigma and prejudice against people with disabilities (Yuker 1988, Nowicki and Sandiesen 2002, Muzzatti 2008, Scior 2011, Westerholm et al. 2006a; 2006b), which helped motivate the anti-discrimination provisions of the ADA.

[2] The lower number is based on the 2014 American Community Survey as reported in Houtenville et al. (2016), and the larger number is based on the 2010 Survey of Income and Program Participation as reported in Brault (2012) http://www.census.gov/prod/2012pubs/p70-131.pdf

Apart from direct discrimination, people with disabilities are often constrained by the built environment, such as buildings with steps that do not accommodate people in wheelchairs (Schur, Kruse, & Blanck, 2013). According to the social model of disability, such inaccessibility can be a form of discrimination that limits people with disabilities from participating in public life, even if there is no personal prejudice at play. The ADA addresses the issue of environmental inaccessibility by requiring that new construction or renovations of public accommodations meet accessibility standards, and that existing buildings make readily achievable modifications to promote more universal design.

This study builds on recent scholarship that examined racial discrimination among Airbnb hosts. Here, we implemented a similar field experiment to determine host responses to lodging requests from people with disabilities. Airbnb describes itself as a peer-to-peer online marketplace that enables its users to list or rent short-term lodging.[3] The success of Airbnb shows that it provides a desirable service for many travelers, and is a source of income for hosts. It raises a troubling question, however, of whether there is equal access for travelers with disabilities, and it is uncertain if the ADA technically applies to Airbnb.[4] While some Airbnb hosts may be public accommodations in the traditional sense, the ADA explicitly excludes places of lodging that are (a) located within a facility containing not more than five rooms for rent, and (b) is occupied by the proprietor as a place of residence.[5] This implies that many if not most Airbnb hosts are not covered by the law, so that the rise of this hotel-like platform may be seen as a return to pre-ADA conditions for many travelers with disabilities.[6] This suggests that the

[3] https://www.airbnb.com/about/about-us
[4] http://blogs.findlaw.com/strategist/2014/08/could-house-sharing-open-the-door-for-ada-litigation.html
[5] https://www.ada.gov/regs2010/titleIII_2010/titleIII_2010_regulations.htm#a104
[6] It could be argued, however, that this platform acts as a functional substitute for public accommodations and should therefore be covered by the ADA.

development of a sharing or platform economy may be undermining laws that require people with disabilities to be treated on an equal basis with other travelers.

This study examines responses by Airbnb hosts to lodging inquiries from travelers with disabilities, shedding light on the difficulties faced in accessing the unregulated sharing economy. The primary goals of this study are to examine: (1) the disparities in access to Airbnb hosts faced by travelers with four common disabilities—blindness, cerebral palsy, dwarfism, and spinal cord injury; (2) host comments in response to requests from travelers with disabilities; (3) whether disparities in access by disability status were affected by Airbnb's announcement of its non-discrimination policy on September 8, 2016; (4) whether disparities in access by disability status exist among hosts who advertise their lodging as "wheelchair accessible"; (5) whether disparities by disability status are greater for shared units than for entire units, which would suggest host discomfort or bias in directly interacting with guests with disabilities in shared units; and (6) whether disparities in access by disability status exist amongst hosts who are likely to be covered under the ADA.

In the next section, we review models of disability discrimination, followed by a description of the research setting, method, results, and conclusion.

2. MODELS OF DISCRIMINATION

The "taste-based" model of discrimination focuses on prejudice or bias that leads individuals to avoid interacting with members of stigmatized groups (Becker 1957). Many studies have shown that people with disabilities continue to face stigma (Nowicki and Sandiesen, 2002; Yuker 1988; Scior 2011; Muzzatti 2008; Westerholm et al. 2006a, 2006b; Thompson et al. 2011). In the context of lodging, Airbnb hosts may exhibit personal prejudices against travelers

with disabilities by refusing them altogether, possibly hiding behind claims that they are already booked or the home cannot accommodate people with a specific impairment.

According to the statistical discrimination model, hosts may not be personally uncomfortable with individuals with disabilities, but have imperfect information on individuals and base their decisions on perceptions of people with disabilities in general (Arrow 1973, Phelps 1972). Hosts may, for example, perceive that travelers with disabilities will be generally more troublesome or create extra costs or burdens.

A third type of discrimination is identified by the "social model" of disability that focuses not on direct prejudice or perceptions of people with disabilities, but on a deeper indirect form of discrimination in the construction of inaccessible physical environments. According to the social model, the physical environment "disables" people with impairments regardless of individual attitudes: "it is society which disables physically impaired people" (Barnes and Mercer, 2010: 31). Society is responsible for constructing disabilities by creating social and physical environments that segregate and stigmatize individuals who have impairments. Regarding lodging, most houses and apartments have been constructed on the assumption that people are able-bodied. A contrasting approach is based on the principles of universal design that are used in constructing housing and other buildings to accommodate a wide range of human variation and abilities.[7]

The various forms of discrimination and exclusion faced by people with disabilities in the social and physical environment have fueled the disability rights movement (Shapiro 1994, Barnartt and Scotch 2001, Schur et al. 2013). This movement has brought about the adoption of

[7] https://www.ncsu.edu/www/ncsu/design/sod5/cud/.

the ADA in the U.S., anti-discrimination legislation in many other countries, and adoption of the UN Convention on the Rights of Persons with Disabilities which has 160 signatories.[8]

The rise of new Internet-based platforms enables many service providers to intentionally or unintentionally avoid coverage by these laws. The ADA and other anti-discrimination laws make clear distinctions between public space (subject to the laws) and private dwellings (outside the scope of the laws). The sharing economy, however, blurs the distinction between public and private space, by commodifying transactions that take place in what is traditionally considered private space. This creates a gray area that may reflect a return to the time before modern civil rights laws, and the enlargement of space for exhibiting discriminatory behavior in commercial transactions.

3. RESEARCH SETTING

The focus of this study is Airbnb, an Internet-based platform that facilitates short-term lodging rentals by travelers. According to Airbnb, its hospitality platform offers an easy way for people to "monetize their extra space and showcase it to an audience of millions."[9] On Airbnb's online marketplace, hosts list available space for rent, including details on pricing and amenities. Travelers search and browse options for a property in the city where they wish to stay. Travelers choose their preferred listing, and hosts can approve or reject the booking. Once travelers fulfill their stay, hosts and travelers can then rate one another based on the overall lodging experience. Airbnb charges a 10% commission from hosts on every booking done through the platform, and charges travelers 3% of the booking amount for every confirmed booking.

[8] http://www.un.org/disabilities/convention/conventionfull.shtml. The U.S. is a signatory but the Convention has not been ratified by the Senate.
[9] https://www.airbnb.com/about/about-us

A field experiment by Harvard researchers very similar to our study found apparent racial discrimination by Airbnb hosts, who were more likely to approve guests with white-sounding names than those with black-sounding names (Edelman, Luca, and Svirsky forthcoming). Following controversy engendered by that study, Airbnb announced a new non-discrimination policy on September 8th, 2016, requiring all users to "affirmatively certify" that they will "treat all fellow members of this community, regardless of race, religion, national origin, disability, sex, gender identity, sexual orientation or age, with respect, and without judgment or bias."[10] The new policy "will apply to everyone who uses Airbnb as of September 8, 2016."[11] Among the requirements with respect to disability, the policy says that Airbnb hosts may not "decline a guest based on any actual or perceived disability," and adopts the ADA language of "reasonable accommodations" in saying that hosts may not:

> Refuse to provide reasonable accommodations, including flexibility when guests with disabilities request modest changes in your house rules, such as bringing an assistance animal that is necessary because of the disability, or using an available parking space near the unit. When a guest requests such an accommodation, the host and the guest should engage in a dialogue to explore mutually agreeable ways to ensure the unit meets the guest's needs.[12]

Starting on September 8, all Airbnb users must indicate agreement with the nondiscrimination policy before they can proceed. Since our data collection began on June 1 and ended on November 15, this policy was implemented in the middle of our study, allowing us to

[10] https://www.airbnb.com/help/article/1405/airbnb-s-nondiscrimination-policy--our-commitment-to-inclusion-and-respect, accessed 11-20-16. See coverage at http://www.nytimes.com/2016/09/09/technology/airbnb-anti-discrimination-rules.html?_r=2

[11] http://blog.airbnb.com/wp-content/uploads/2016/09/REPORT_Airbnbs-Work-to-Fight-Discrimination-and-Build-Inclusion.pdf?3c10be, page 20, accessed 11-20-16

[12] https://www.airbnb.com/help/article/1405/airbnb-s-nondiscrimination-policy--our-commitment-to-inclusion-and-respect, accessed 11-20-16.

do pre/post comparisons to see if there is any detectable effect on host responses in the first 9 weeks of the policy.[13]

4. METHOD

Following the method of Edelman, Luca, and Svirsky (forthcoming) and the growing social science literature in field experiments (Harrison and List 2004, Levitt and List 2009, Pager, Western, and Bonikowski 2009, Neumark 2016), the research design here includes a field experiment that generates evidence in a real-world setting.[14] In this study, fictitious Airbnb guest profiles were crafted to represent male adults who live with (1) blindness, (2) dwarfism, (3) cerebral palsy, (4) spinal cord injury, or (5) no disability. These common disabilities were chosen because each of them may require accommodations, and the inquiries mentioned the possible need for accommodations (see Appendix). We would have liked to include a disability for which no accommodation would be needed, but there would have been no plausible reason for a guest to reveal a disability in that case. These profiles were used to inquire about the availability of 3,847 listings across the United States. Stock images of male portraits were licensed to portray our travelers with and without disabilities.[15] All portraits were of white males who are about 30 years old. Email addresses and telephone numbers were also assigned to the user accounts for added verification.

Twenty-five user accounts were created with five accounts for each disability type. One

[13] While Airbnb stated that the nondiscrimination policy would become effective on November 1, the actual effective date appears to be September 8, since starting on that date all users have to click a box indicating agreement with a statement that includes "I also agree to follow Airbnb's Nondiscrimination Policy and help our community build a world where people of all backgrounds feel included and respected." The words "Nondiscrimination Policy" provide a link to the new policy.
[14] The research methods were approved under IRB Protocol #E16-632.
[15] Male names that originate from BabyCenter's "Top 100 Baby Names of 1990" were used to craft the user profiles on Airbnb: http://www.babycenter.com/top-baby-names-2015.

request was sent from each account each day from June 1, 2016 to November 15, 2016.[16] The accounts were clustered into five groups, and the groups were assigned to regions across the 48 continental states. Each group inquired about lodging only within the region assigned to them, and alternated inquiries from state to state every week.[17] The listings were chosen randomly each day within the state, with cross referencing to ensure only one contact per host for those with multiple listings.

Using Airbnb's built-in messenger service, brief texts were submitted to hosts of various properties whose listings were available for a time of stay eight weeks in the future.[18] The hypothetical travelers (1) introduce themselves, (2) comment on the attractiveness of the home, (3) inquire if the listing is available for the desired weekend of stay, and (4) describe the disability and possible need for accommodation.[19] The texts of the requests are provided in the Appendix.

Upon receiving a positive response from the host, the hypothetical travelers replied by indicating that they appreciated the offer, had a change in their travel arrangements, and would consequently not visit the area. Responses were designed to reduce the probability that hosts would reserve the listing for one of the hypothetical travelers, and to avoid host suspicions that could have led to study exposure. Host responses were recorded over a period of one week. In addition to coding expressions of interest or disinterest, the study also recorded host inquiries about accessibility and expressions of openness to accommodations. The study team also

[16] Four of the accounts were shut down by Airbnb in the course of the study, accounting for uneven sample sizes across the disability types. The remaining accounts were closed by the study team after the data collection.
[17] In accordance with Edelman et al. (forthcoming), the research team here understood that hosts may offer multiple listings for lodging on Airbnb, and thus hosts were categorized by their user profiles to eliminate the likelihood that hosts receive multiple identical messages from our hypothetical travelers.
[18] The study team requested lodging eight weeks into the future to reduce any chance of a host holding a reservation for our hypothetical traveler's inquiry to the disservice of an authentic inquiry (Edelman et al., forthcoming).
[19] Item four was not necessary for our hypothetical travelers without disabilities.

recorded the city and state in which properties are located; whether the host is listing an "entire place", "private room" (where travelers share the space, but have their own private room for resting), or "shared room" (where travelers do not have a room to themselves); the daily rate for lodging; whether the listing amenities indicate that it is "wheelchair accessible"; the number of bedrooms and bathrooms; host gender; and the number of listings posted from the host on Airbnb for the weekend in question.

As noted, on September 8, 2016 Airbnb announced its new policy on nondiscrimination, which requires hosts and guests to agree that they will demonstrate respect and be inclusive toward all travelers.[20] If users disagree to comply with the policy, they are prohibited to host or travel using Airbnb. To determine if Airbnb's nondiscrimination policy has affected disparities in access by disability status, the research team measured any change in host interest and their openness to making accommodations starting on September 8 when the policy was announced.

In the analysis, we first provide simple tabulations of results by disability type, with chi-squared tests for significant differences between each disability type and the "no disability" category. To more fully control for any variation not captured by randomization, we present multinomial probit regressions that predict whether the host response was 1) preapproval, 2) no preapproval but inquiries from the host, or 3) rejection or no response.[21] The results of the multinomial probits are transformed into average marginal effects, reflecting the average difference in the likelihood of a particular response between a visitor with a specific disability and a visitor without a disability. In the regressions we include controls for: unit type, host

[20] https://www.airbnb.com/help/article/1405/airbnb-s-nondiscrimination-policy--our-commitment-to-inclusion-and-respect

[21] We also tested alternative specifications of the response outcomes, including: a) preapprovals versus rejections (eliminating "no preapproval but inquiries from the host" and "no response" categories), b) preapprovals versus rejections or no responses, c) preapprovals or inquiries versus rejections, and d) preapprovals or inquiries versus rejections or no responses. The results (not reported but available) are very similar to those obtained through the multinomial probits.

gender, entire versus shared unit, number of bedrooms, natural logarithms of number of listings and the daily rate, region of country, weekend of request, whether the listing is advertised as "wheelchair accessible," and whether the request was made after the September 8 policy announcement. To explore the possible differential effects of disability under different conditions, we also test interactions of type of disability with: whether the listing is advertised as "wheelchair accessible"; type of lodging and entire versus shared unit; whether the request was made after the policy announcement; and whether the host had 6 or more listings.

5. RESULTS

Hosts were less likely to preapprove the requests from travelers with disabilities. As shown in Table 1 and illustrated in Figure 1, the preapproval rate was 74.5% for travelers without disabilities, compared to 60.9% for those with dwarfism, 49.7% for those with blindness, 43.4% for those with cerebral palsy, and 24.8% for those with spinal cord injury. All the differences between the non-disability group and the disability types are statistically significant at the 99.9% level. Part of the difference in preapprovals is accounted for by hosts who did not preapprove but had inquiries for the travelers, ranging from 15.9% to 19.0% of the host responses depending on the type of disability. However, the overall rate of rejections or no response was still significantly higher for three of the disability categories compared to the travelers without disabilities. Compared to a rejection rate of 16.8% for travelers without disabilities, the rejection rate for travelers with disabilities was over twice as high for travelers with blindness (34.4%), cerebral palsy (40.7%), and spinal cord injury (59.8%), with a smaller increase for travelers with dwarfism (20.1%) that is not statistically significant at the 95% level.

The randomization of the experimental design automatically controls for many other

observed and unobserved factors that can influence the results. Nonetheless we probe the results by controlling for other observed host and listing characteristics in multinomial probit regressions, with results reported in Table 2 and descriptive statistics in Appendix Table 1. The results in Table 2 are very similar to those in Table 1, showing significantly lower rates of preapproval for the travelers with disabilities (column 4) along with higher rates of inquiries (column 5), and the rejection rate is higher for each disability type except for those with dwarfism (column 6).

Host comments

Table 3 shows tabulations of coded host comments. About one-third of hosts said they could generally accommodate travelers with blindness (30.0%) or dwarfism (33.2%), with lower figures for travelers with cerebral palsy (19.9%) or spinal cord injury (3.5%)(row 3). One-fourth of the hosts responded that they could not accommodate the traveler with cerebral palsy (26.4%) and one-half responded they could not accommodate the traveler with spinal cord injury (49.0%), compared to only 4.4% for those with blindness and 2.3% for those with dwarfism (row 7). Some of the hosts expressed concern about accessibility by either asking how they could make their place accessible (row 4), or referring the traveler to another Airbnb house that would be accessible (row 8).

Only a few host comments were rude or insensitive, such as various comments to the traveler with blindness who uses a guide dog:

> "Does the dog drive?"
>
> "Um. That's a new one. How do you drive?"
>
> "How could you see my listing if you are blind?"

Some hosts rejected travelers with little explanation (e.g., "I don't think my house will work for your needs"), while many described physical accessibility problems. Some examples from hosts were:

> "Our place has a very narrow and circular stairway, so it would be too difficult for you" (responding to traveler with cerebral palsy)
>
> "Unfortunately our home was designed for my 6'4 grandpa and I'm afraid many of our amenities are positioned higher up" (responding to traveler with dwarfism)
>
> "Honestly I would have to check with our insurance company regarding whether we are covered to host guests with disabilities" (responding to traveler with cerebral palsy)
>
> "Unfortunately we don't have a wheelchair ramp and every entrance has 3 steps. Unless you have someone who is coming with you and could carry you up those 3 steps I don't think our place is the right fit for you" (responding to traveler with spinal cord injury)

The request from our traveler with blindness included the phrase "please understand that I am blind and use a guide dog." The new Airbnb antidiscrimination policy explicitly addresses the question of assistance animals by saying that hosts may not "Refuse to provide reasonable accommodations, including flexibility when travelers with disabilities request modest changes in your house rules, such as bringing an assistance animal that is necessary because of the disability."[22] Nonetheless a number of hosts rejected requests from travelers with blindness due to concerns about the guide dog. Examples of host comments from after the policy was announced include:

> "Sorry I can't have pets up there everything is new."
>
> "Unfortunately I'm allergic to pet dander."
>
> "We have a dog on the property which would be a problem."

[22] https://www.airbnb.com/help/article/1405/airbnb-s-nondiscrimination-policy--our-commitment-to-inclusion-and-respect

The new policy also states that hosts may not "Charge more in rent or other fees for guests with disabilities."[23] Several hosts nonetheless said they would charge an extra fee for the traveler with blindness, as shown in these examples after the policy was announced:

> "I do not normally allow animals but if you are willing to pay an additional 100 dollars for animal cleaning I would be ok with it."
>
> "There is a non-refundable pet fee of $25 (cash preferred) due upon check in... One of the house rules is to clean up after your pets using the available dog doodoo bags. If we have to clean the yard of dog messes, an additional fee will be applied. Will someone be with you to assist you with that?"
>
> "Per Texas state law we are required to clean the carpets and deflea after an animal stays with us. The deflea is $90 and the carpet clean is $50, so we would need to collect $140 in pet fees at check in to cover those costs. It's regrettable that we have to charge this fee, but we have to stay in compliance with the law."

In contrast to the above negative examples, many hosts expressed the desire to accommodate and welcome the traveler, and several mentioned friends or family members with disabilities:

> "Interestingly, our son has spastic diplegia and has limited mobility and he stays in the suite when he visits. In fact, one of the reasons we bought this house was because we knew he could visit and stay on the first floor! We would be happy to have you stay in the suite" (responding to traveler with cerebral palsy).
>
> "I raised a dwarf and thus understand your needs and will make sure things are easily reachable!" (responding to traveler with dwarfism).
>
> "I can carry you and your chair up the stairs and/or have a friend who lives close by come and help. I really would like you to stay so we'll make this happen" (responding to traveler with spinal cord injury).
>
> "We do have 2 steps up to our front porch-but we'd be happy to assist you" (responding to traveler with spinal cord injury).
>
> "I'd be happy to assist you in any way to get up to the room and back down again but it is on the 2nd floor" (responding to traveler with cerebral palsy).

[23] https://www.airbnb.com/help/article/1405/airbnb-s-nondiscrimination-policy--our-commitment-to-inclusion-and-respect. An Airbnb site with "Frequently Asked Questions" about the new policy states that "under the policy hosts cannot charge extra fees to guests with service animals." (https://www.airbnb.com/help/article/1435/host-resources-and-faqs-about-nondiscrimination, accessed 12-10-16).

> "We would of course provide any reasonable accommodations to ensure that your stay is pleasant" (responding to traveler with dwarfism).
>
> "We would be glad to modify anything as needed" (responding to traveler with dwarfism).
>
> "You would be my first blind guest. Is there anything that I would need to do to make the apartment more accessible?" (responding to traveler with blindness).
>
> "Dwarfism or coolism, it's all the same to us. Book it. Can't wait to meet you."[24]

Advertised as "wheelchair accessible"

Airbnb hosts have the option of marking their lodging as "wheelchair accessible." Of the listings that we contacted, 252 or 6.6% were marked as wheelchair accessible. These hosts were (not surprisingly) more likely than other hosts to preapprove travelers with cerebral palsy or spinal cord injury (Table 4, row 7), which are disabilities that often require wheelchair use. While the preapproval rates for travelers with these two disabilities remained lower than for travelers without disabilities in the "wheelchair accessible" group (row 1), the difference in preapprovals is not statistically significant for travelers with cerebral palsy, and is only weakly significant (at the 90% level) for travelers with spinal cord injury, after controlling for other factors in the multinomial probit in Table 5. Therefore it appears that "wheelchair accessible" hosts remain less likely to preapprove travelers with these two disabilities than to approve travelers without disabilities, but the small sample of these hosts limits the statistical power of these comparisons.

Both tables show high rates of inquiries for travelers with spinal cord injury from hosts in the "wheelchair accessible" group, which may reflect the proper approach of beginning a more

[24] Coolism is defined in the Urban Dictionary as "The amount of how cool something or someone is" (http://www.urbandictionary.com/define.php?term=Coolism, accessed 12-9-16).

detailed conversation about how to meet traveler needs (as promoted by the ADA and the new Airbnb antidiscrimination policy), but may also reflect a lack of common standards in how "wheelchair accessible" is defined among Airbnb hosts (such as the ADA regulations provide).

Pre/post comparison on new policy announcement

Airbnb announced a new nondiscrimination policy on September 8. This policy change was not anticipated at the time the data collection for this study began on June 1, but here we take advantage of it to see if there is any detectable change in host responses following the announcement and implementation of a requirement for all users to agree to the new policy starting on September 8. There were 2,392 requests made before September 8, and 1,427 requests made between September 8 and the end of the data collection on November 15.

Table 6 provides tabulations of the host responses before and after the announcement. There were no significant changes in the three basic responses for any of the disability types. Similarly, Table 7 shows no significant changes in estimated effects of any disabilities after controlling for other factors in a multinomial probit.

Entire versus shared units, and type of lodging

Some lodging places require face-to-face interaction, such as a bedroom in a house where the guest would be sharing living space with the host. We compare listings classified as "entire places", where the guest would be the only occupant, to listings classified as "private rooms" or "shared rooms" where there would almost certainly be personal interaction. Preapproval rates were lower for travelers with each type of disability compared to travelers without disabilities whether the listing was for an entire or shared unit, as shown in the tabulations of Table 8. The

rejection rate was significantly higher in shared units than in entire units for travelers with cerebral palsy and spinal cord injury (Table 8, rows 3, 6, and 9). While this may indicate host discomfort with these stigmatized conditions (Royal and Roberts 1987; Westbrook et al. 1993; Olkin and Howson 1994), it is also possible that this reflects differences in accessibility across types of lodging. We ran the multinomial probit with a full set of interactions among disability type, shared versus entire unit, and type of lodging.

The first main finding from the probit results in Table 9 is that the negative effects of disabilities on host responses are quite consistent across types of lodging, with all but one test failing to reject the equality of effects across lodging type and entire unit status (rows 10, 20, 30, 40). The second main finding from Table 9 is a higher rejection rate for travelers with cerebral palsy in shared units only in apartments or condominiums (row 16, column 3), and not in houses or other lodging types (rows 13 and 19, column 3). The opposite pattern occurs for travelers with spinal cord injury, where the higher likelihood of rejection in a shared unit is confined to listings for houses (row 33, column 3), and does not appear for apartments/condominiums or other lodging types (rows 35 and 38, column 3). This second finding muddies the story with regard to personal bias or prejudice playing a role, since there is no reason to expect bias to be confined to hosts listing a particular type of lodging. Rather, it may be that the differences found in Table 8 reflect variation in accessibility for shared versus entire units across different types of lodging. The findings nonetheless point to the value of further research on whether disability bias and stigma may lead some hosts to avoid personal interaction with people with disabilities.

ADA coverage

As described earlier, many if not most hosts are probably not covered by the ADA. The

ADA regulations cover places of lodging "except for an establishment located within a facility that contains not more than five rooms for rent or hire and that actually is occupied by the proprietor of the establishment as the residence of the proprietor."[25] To test possible effects of ADA coverage, we compared responses of hosts based on whether they listed 6 or more units available on the same weekend (totaling 192 or 5.0% of our sample). We did not find significant differences in responses based on this threshold (results not reported but available), but recognize that this is an imperfect measure since those with 6 or more listings may include: a) those with listings across different facilities, or b) companies that manage listings across several owners. Regarding ADA coverage of those with fewer than 6 listings, we do not have a measure of whether the unit is owner-occupied so cannot examine likely ADA coverage for those listings. This is a good topic for further study.

6. SUMMARY AND CONCLUSION

How much access do travelers with disabilities have to the sharing economy? This study finds that travelers with blindness, cerebral palsy, dwarfism, or spinal cord injury are less likely than travelers without disabilities to find available lodging through Airbnb. The gaps in access do not vary substantially by whether the request was made before or after Airbnb's announcement of a new nondiscrimination policy. While we did not see any immediate change in host responses, it is possible that this new policy will have a greater effect over time.

Unlike the Harvard study that identified racial discrimination among Airbnb hosts, we cannot clearly ascribe the patterns we find here to personal prejudice. While prejudice and discomfort may be a motivating factor behind many of the rejections, a large number of hosts

[25] https://www.ada.gov/regs2010/titleIII_2010/titleIII_2010_regulations.htm#a104

expressed warmth and sympathy to our travelers with disabilities, and a desire to help them find accessible lodging.

Apart from any prejudice or discomfort, physical inaccessibility is a major factor in the patterns we find. For example, there were higher preapproval rates for travelers with dwarfism than for travelers with spinal cord injury, which at least partly reflects that it is generally easier and less costly to accommodate someone with dwarfism (e.g., by supplying stools, or mirrors at lower heights) than to accommodate someone with a spinal cord injury (e.g., often requiring ramps or lifts, and/or wide doorways). Many if not most of the hosts are offering their private owner-occupied dwellings, which are not covered by the ADA and are unlikely to be fully accessible.

Physical inaccessibility may represent a deeper form of discrimination in the built environment, as posited by the social model of disability. This raises the larger issue of whether Internet-based platforms like Airbnb are expanding services in a way that contributes to or even increases the social exclusion of people with disabilities. Airbnb's business model, like that of most peer-to-peer ventures, is not to act like a hotel operator capable of handing down mandates to its subsidiaries. It is instead a platform on which a free network of independent contracting homeowners can connect with customers in need of a place to stay. This structure enables Airbnb to avoid laws that would apply to other businesses in the hospitality industry.

The issues we raise here are thorny, and there do not appear to be simple solutions. We offer some ideas on how to promote equal access:

- Airbnb should ensure that hosts who are covered by the ADA know and follow the ADA standards.
- Hosts who list their units as "wheelchair accessible" should be required to follow

ADA guidelines on accessibility, and it would be valuable to give hosts more information and the opportunity to list their units as meeting other ADA accessibility standards, such as for blindness.

- Enforcement of the new nondiscrimination policy should include specific outreach to travelers who identify as having disabilities to learn about their experiences, and possibly "mystery shoppers" who have been used in hotels to monitor service quality (Ford and Bach 1997; Wilson 1998).
- Airbnb should consider on-going partnerships with disability organizations to ensure that the needs of travelers with disabilities are well reflected in their policies, and provide links to disability organizations for these travelers. A set of principles could be developed as has been done with the "Good Work Code" for companies that provide jobs through on-line platforms.[26]
- There is a need for further research and robust discussion on how the ADA and other public policies can increase lodging options for travelers with disabilities.

While many people benefit from the increased use of platform-based services, public policy and private organizations need to confront this growing gray zone of unregulated activity to preserve the principles of nondiscrimination and equal access for every individual. We hope our findings contribute to creative thought and discussion on how to ensure that people with disabilities are not shut out of the sharing economy.

[26] This code was developed by the Domestic Workers Alliance and has been adopted by several platform-based companies (http://www.goodworkcode.org/about/, accessed 12-9-16). Also see the "Frankfurt Paper on Platform-based Work" which examines how to ensure fair working conditions for platform-based work (http://crowdwork-igmetall.de/, accessed 12-15-16).

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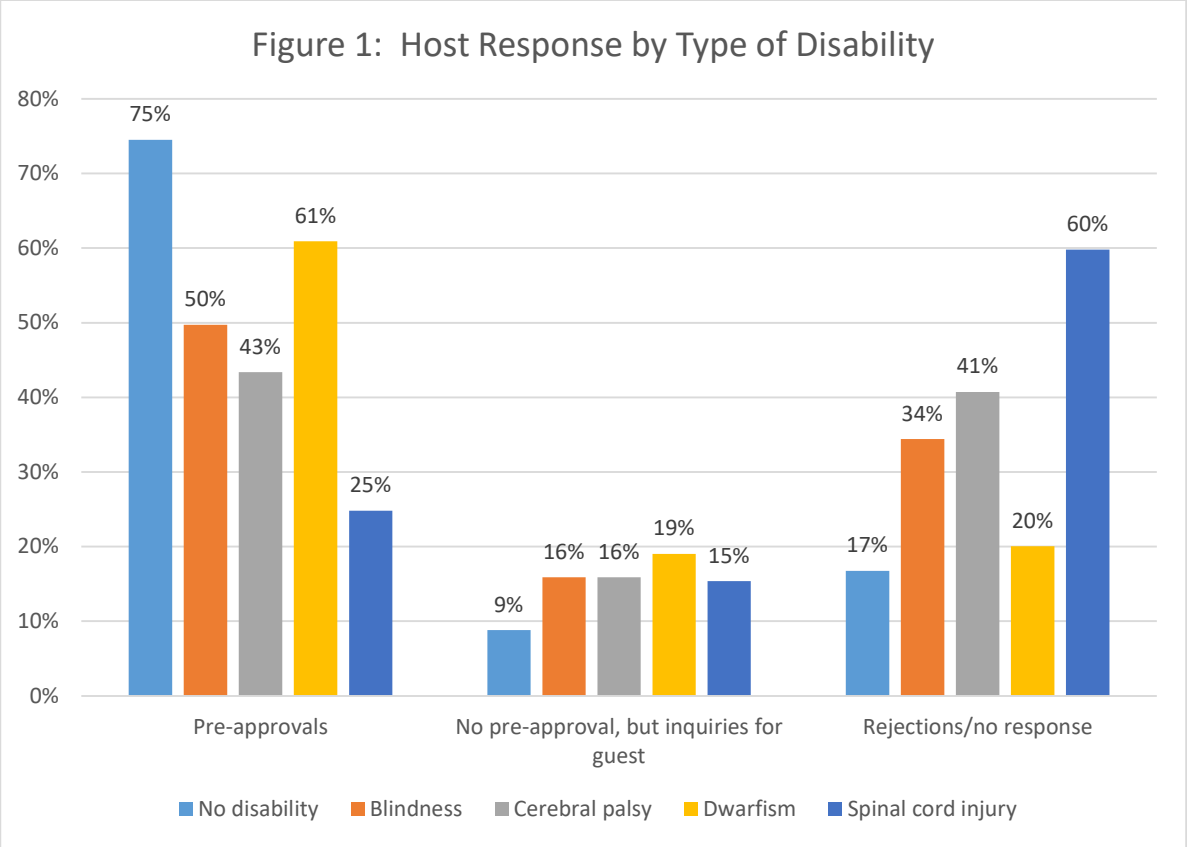
Figure 1: Host Response by Type of Disability
80%
70%
60%
50%
40%
30%
20%
10%
0%
75%
50%
43%
61%
25%
9%
16%
16%
19%
15%
17%
34%
41%
20%
60%
Pre-approvals
No pre-approval, but inquiries for guest
Rejections/no response
No disability
Blindness
Cerebral palsy
Dwarfism
Spinal cord injury

Table 1: Host Responses by Disability Status and Type

	No disability	Blindness		Cerebral palsy		Dwarfism		Spinal cord injury	
	(1)	(2)		(3)		(4)		(5)	
All requests	100.0%	100.0%		100.0%		100.0%		100.0%	
1. Pre-approvals	74.5%	49.7%	***	43.4%	***	60.9%	***	24.8%	***
With no inquiries for guest	63.4%	34.1%	***	26.3%	***	36.1%	***	11.8%	***
With inquiries for guest	11.1%	15.6%	**	17.1%	***	24.9%	***	13.1%	
2. No pre-approval, but inquiries	8.8%	15.9%	***	15.9%	***	19.0%	***	15.4%	***
3. Non-rejections (sum of 1 and 2)	83.3%	65.6%	***	59.3%	***	79.9%		40.2%	***
4. Rejections/no response	16.8%	34.4%	***	40.7%	***	20.1%		59.8%	***
Due to accessibility issues	0.7%	13.6%	***	24.7%	***	2.3%	*	45.1%	***
Due to other issues	7.5%	12.0%	**	4.8%	*	7.1%		7.2%	
No explanation	7.0%	6.5%		9.0%		7.1%		4.3%	*
No response	1.6%	2.3%		2.2%		3.6%	*	3.2%	*
Sample size	830	750		830		663		774	

* Significant difference from column 1 at p<.05 ** p<.01 *** p<.001

Table 2: Predicting Host Responses

Figures represent average marginal effects on probability of specified outcome , based on multinomial probits.

		Multinomial probit 1			Multinomial probit 2		
	Outcome:	Preapproval	No preapproval but inquiries	Rejection/no response	Preapproval	No preapproval but inquiries	Rejection/no response
		(1)	(2)	(3)	(4)	(5)	(6)
Disability type							
	No disability (excl.)						
	Blindness	-0.247***	0.071***	0.177***	-0.246***	0.070***	0.176***
		(0.028)	(0.018)	(0.023)	(0.028)	(0.017)	(0.023)
	CP	-0.311***	0.071***	0.240***	-0.316***	0.075***	0.241***
		(0.027)	(0.016)	(0.024)	(0.024)	(0.015)	(0.022)
	Dwarf	-0.135***	0.102***	0.033	-0.128***	0.098***	0.030
		(0.026)	(0.018)	(0.022)	(0.025)	(0.017)	(0.020)
	SCI	-0.497***	0.066***	0.431***	-0.499***	0.069***	0.430***
		(0.025)	(0.015)	(0.024)	(0.022)	(0.014)	(0.020)
Unit type							
	House (excl.)						
	Apt/condo				-0.000	-0.013	0.013
					(0.022)	(0.016)	(0.019)
	B&B				0.034	-0.052*	0.018
					(0.034)	(0.023)	(0.031)
	Other				0.018	-0.018	0.001
					(0.022)	(0.016)	(0.020)
Entire unit available					0.099***	0.012	-0.111***
					(0.020)	(0.015)	(0.018)
Host gender							
	Male+female (excl.)						
	All female				-0.002	-0.006	0.008
					(0.024)	(0.020)	(0.026)
	All male				0.028	-0.040*	0.012
					(0.026)	(0.018)	(0.025)
	Unknown				-0.064	-0.051	0.115
					(0.066)	(0.041)	(0.064)
Number of bedrooms					-0.008	0.000	0.008
					(0.010)	(0.007)	(0.009)
Number of listings							
	Ln(# of listings)				0.014	-0.000	-0.014
					(0.015)	(0.012)	(0.016)
	6 or more listings				-0.017	-0.003	0.019
					(0.049)	(0.039)	(0.050)
Ln(daily rate)					-0.051**	0.009	0.041**
					(0.016)	(0.011)	(0.015)
Advertised as					0.195***	-0.044	-0.150***
"wheelchair accessible"					(0.035)	(0.024)	(0.035)
After policy announcement					-0.162	0.104	0.059
					(0.115)	(0.108)	(0.108)
n		3847			3847		

Standard errors in parentheses, adjusted for clustering by state*disability type. All regressions control for region and weekend of request.

* p<0.05, ** p<0.01, *** p<0.001

Table 3: Disability Status and Host Comments on Accessibility

		No disability	Blindness		Cerebral palsy		Dwarfism		Spinal cord injury	
		(1)	(2)		(3)		(4)		(5)	
Host comment regarding accessibility:										
1	No mention of accessibility	100.0%	36.5%	***	12.2%	***	25.9%	**	15.9%	***
2	House can accommodate impairment	0.0%	0.7%	***	5.8%	***	3.3%		2.8%	
3	House can generally accommodate	0.0%	30.0%	***	19.9%		33.2%	***	3.5%	***
4	House is not fully accessible but host is open to making it accessible	0.0%	1.7%		1.7%	*	4.1%	*	3.6%	
5	House is not fully accessible	0.0%	12.9%	*	14.2%	***	3.0%	***	10.6%	
6	Asks about needs to determine accessibility	0.0%	12.5%	**	15.1%		27.8%	***	10.5%	***
7	House cannot accommodate impairment	0.0%	4.4%	***	26.4%	***	2.3%	***	49.0%	***
8	House cannot accommodate impairment, but host suggests another Airbnb house	0.0%	1.2%	**	4.8%	***	0.5%	***	4.1%	**
Sample size		830	750		830		663		774	

* Significant difference from combined other disability categories at p<.05 ** p<.01 *** p<.001

Table 4: Host Responses by Disability Status and Advanced Wheelchair Accessibility

Row		No disability (1)	Blindness (2)		Cerebral palsy (3)		Dwarfism (4)		Spinal cord injury (5)	
If advertised as "wheelchair accessible"										
1	Pre-approvals	80.0%	58.8%	*	71.0%		73.8%		59.7%	*
2	No pre-approval, but with inquiries for guest	5.0%	5.9%		6.5%		16.7%		21.1%	*
3	Rejection or no response	15.0%	35.3%	*	22.6%		9.5%		19.3%	
	Total	100.0%	100.0%		100.0%		100.0%		100.0%	
If not advertised as "wheelchair accessible"										
4	Pre-approvals	74.2%	49.1%	***	41.2%	***	60.1%	***	22.0%	***
5	No pre-approval, but with inquiries for guest	9.0%	16.6%	***	16.7%	***	19.2%	***	14.9%	**
6	Rejection or no response	16.8%	34.3%	***	42.2%	***	20.8%		63.0%	***
	Total	100.0%	100.0%		100.0%		100.0%		100.0%	
Difference by advertised accessibility										
7	Pre-approvals	5.8%	9.8%		29.8%	*	13.8%		37.6%	**
8	No pre-approval, but with inquiries for guest	-4.0%	-10.7%		-10.2%		-2.5%		6.1%	
9	Rejection or no response	-1.8%	1.0%		-19.6%	*	-11.3%		-43.7%	***
Sample size										
	If advertised as "wheelchair accessible"	40	51		62		42		57	
	If not advertised as "wheelchair accessible"	790	699		768		621		717	

* Significant difference from column 1 at p<.05 ** p<.01 *** p<.001

Table 5: Predicting Host Responses by Advertisement as Wheelchair Accessible

Figures represent average marginal effects of type of disability, relative to no disability, by whether listing is advertised as accessible, based on a multinomial probit regression.

	Multinomial probit 1		
Outcome:	Preapproval	No preapproval but inquiries	Rejection/ no response
	(1)	(2)	(3)
Disability type			
Blindness			
Not advertised as wheelchair accessible	-0.247***	0.075***	0.172***
	(0.028)	(0.018)	(0.024)
Advertised as wheelchair accessible	-0.202*	0.007	0.196*
	(0.099)	(0.042)	(0.078)
P-value for equality of effects	0.653	0.137	0.766
Cerebral palsy			
Not advertised as wheelchair accessible	-0.332***	0.080***	0.252***
	(0.024)	(0.016)	(0.023)
Advertised as wheelchair accessible	-0.082	0.013	0.069
	(0.098)	(0.043)	(0.077)
P-value for equality of effects	.011*	0.156	.020*
Dwarfism			
Not advertised as wheelchair accessible	-0.131***	0.097***	0.034
	(0.027)	(0.018)	(0.021)
Advertised as wheelchair accessible	-0.058	0.115	-0.057
	(0.101)	(0.061)	(0.075)
P-value for equality of effects	0.496	0.776	0.239
Spinal cord injury			
Not advertised as wheelchair accessible	-0.520***	0.062***	0.458***
	(0.022)	(0.015)	(0.020)
Advertised as wheelchair accessible	-0.191	0.144**	0.046
	(0.102)	(0.055)	(0.078)
P-value for equality of effects	.002**	0.155	0.000***
n	3847		

*** p<0.001, ** p<0.01, * p<0.05

Standard errors in parentheses, adjusted for clustering by state*disability type. All regressions control for variables in Table 2.

Reported p-values are for tests of equality of marginal effects across accessibility status, within disability type.

Table 6: Host Responses Before and After Announcement of Policy Change

	No disability (1)	Blindness (2)		Cerebral palsy (3)		Dwarfism (4)		Spinal cord injury (5)	
Before policy announcement									
Pre-approvals	73.8%	48.3%	***	44.3%	***	59.0%	***	23.7%	***
No pre-approval, but with inquiries for guest	10.1%	16.2%	**	16.3%	**	20.7%	***	15.9%	**
Rejection or no response	16.1%	35.4%	***	39.4%	***	20.3%		60.4%	***
Total	100.0%	100.0%		100.0%		100.0%		100.0%	
After policy announcement									
Pre-approvals	75.4%	52.2%	***	42.0%	***	65.5%	*	26.6%	***
No pre-approval, but with inquiries for guest	7.0%	15.2%	**	15.4%	***	15.0%	**	14.5%	**
Rejection or no response	17.7%	32.6%	***	42.6%	***	19.5%		58.8%	***
Total	100.0%	100.0%		100.0%		100.0%		100.0%	
Difference between before and after announcement									
Pre-approvals	-1.6%	-3.9%		2.3%		-6.5%		-2.9%	
No pre-approval, but with inquiries for guest	3.1%	1.0%		0.9%		5.7%		1.4%	
Rejection or no response	-1.6%	2.8%		-3.2%		0.8%		1.6%	
Sample size									
Before policy announcement	485	474		485		463		485	
After policy announcement	345	276		345		200		289	

* Significant difference from column 1 at p<.05 ** p<.01 *** p<.001

Table 7: Predicting Host Responses Before and After Policy Announcement

Figures represent average marginal effects of type of disability, relative to no disability, by whether request was before or after policy announcement, based on a multinomial probit regression.

	Multinomial probit 1		
Outcome:	Preapproval	No preapproval but inquiries	Rejection/no response
	(1)	(2)	(3)
Disability type			
Blindness			
Before policy announcement	-0.259***	0.059**	0.199***
	(0.036)	(0.022)	(0.028)
After policy announcement	-0.225***	0.086***	0.139***
	(0.039)	(0.024)	(0.034)
P-value for equality of effects	0.497	0.387	0.137
Cerebral palsy			
Before policy announcement	-0.300***	0.067***	0.233***
	(0.029)	(0.020)	(0.026)
After policy announcement	-0.338***	0.085***	0.253***
	(0.041)	(0.023)	(0.039)
P-value for equality of effects	0.452	0.544	0.676
Dwarf			
Before policy announcement	-0.154***	0.107***	0.047
	(0.030)	(0.022)	(0.024)
After policy announcement	-0.076	0.076**	-0.001
	(0.045)	(0.026)	(0.038)
P-value for equality of effects	0.149	0.364	0.307
Spinal cord injury			
Before policy announcement	-0.509***	0.062**	0.447***
	(0.026)	(0.020)	(0.023)
After policy announcement	-0.483***	0.080***	0.403***
	(0.039)	(0.021)	(0.038)
P-value for equality of effects	0.589	0.538	0.320
n	3847		

*** p<0.001, ** p<0.01, * p<0.05

Standard errors in parentheses, adjusted for clustering by state*disability type. All regressions control for variables in Table 2.

Reported p-values are for tests of equality of marginal effects before and after policy announcement, within disability type.

Table 8: Responses by Disability Status and Whether Entire Unit Available

Row		No disability (1)	Blindness (2)		Cerebral palsy (3)		Dwarfism (4)		Spinal cord injury (5)	
Entire unit										
1	Pre-approvals	76.5%	53.1%	***	50.3%	***	63.1%	***	27.9%	***
2	No pre-approval, but with inquiries for	8.5%	16.3%	**	16.2%	**	18.3%	***	18.8%	
3	Rejection or no response	15.0%	30.6%	***	33.5%	***	18.6%		53.4%	***
	Total	100.0%	100.0%		100.0%		100.0%		100.0%	
Shared unit										
4	Pre-approvals	72.6%	46.5%	***	37.5%	***	59.0%	***	22.0%	***
5	No pre-approval, but with inquiries for	9.1%	15.5%	**	15.6%	**	19.7%	***	12.2%	***
6	Rejection or no response	18.4%	38.1%	***	46.9%	***	21.4%		65.8%	***
	Total	100.0%	100.0%		100.0%		100.0%		100.0%	
Difference by entired versus shared unit										
7	Pre-approvals	3.9%	6.7%		12.8%		4.1%		5.9%	
8	No pre-approval, but with inquiries for	-0.6%	0.8%		0.6%		-1.4%		6.6%	*
9	Rejection or no response	-3.4%	-7.4%		-13.4%	*	-2.8%		-12.5%	*
Sample size										
	If entire unit	400	369		382		317		373	
	If shared unit	430	381		448		346		401	

* Significant difference from column 1 at p<.05 ** p<.01 *** p<.001

Table 9: Predicting Host Responses by Type of Lodging and Shared versus Entire Units

Figures represent average marginal effects of type of disability for each type of lodging, relative to no disability, based on multinomial probit regression.

				Multinomial probit 1					
	Outcome:			Preapproval (1)		No preapproval but inquiries (2)		Rejection/no response (3)	
Blindness									
1	House	Entire unit		-0.217***	(0.049)	0.067	(0.036)	0.150***	(0.041)
2		Shared unit		-0.240***	(0.039)	0.051	(0.028)	0.189***	(0.040)
3			P-value^	0.701		0.712		0.466	
4	Apt/condo	Entire unit		-0.220***	(0.065)	0.056	(0.044)	0.164**	(0.057)
5		Shared unit		-0.307***	(0.090)	0.051	(0.051)	0.256**	(0.081)
6			P-value^	0.392		0.947		0.35	
7	Other	Entire unit		-0.270***	(0.062)	0.103**	(0.039)	0.167**	(0.059)
8		Shared unit		-0.281**	(0.097)	0.145*	(0.065)	0.135	(0.079)
9			P-value^	0.920		0.581		0.737	
10	P-value^^			0.882		0.631		0.849	
Cerebral palsy									
11	House	Entire unit		-0.276***	(0.049)	0.050	(0.039)	0.226***	(0.051)
12		Shared unit		-0.332***	(0.038)	0.059*	(0.025)	0.273***	(0.036)
13			P-value^	0.358		0.849		0.429	
14	Apt/condo	Entire unit		-0.268***	(0.059)	0.087*	(0.039)	0.181***	(0.045)
15		Shared unit		-0.500***	(0.079)	0.071	(0.056)	0.429***	(0.073)
16			P-value^	0.012		0.828		0.003**	
17	Other	Entire unit		-0.273***	(0.052)	0.118***	(0.034)	0.155***	(0.042)
18		Shared unit		-0.308***	(0.074)	0.089	(0.052)	0.219***	(0.065)
19			P-value^	0.670		0.644		0.385	
20	P-value^^			0.224		0.691		.029*	
Dwarf									
21	House	Entire unit		-0.131**	(0.046)	0.052	(0.037)	0.080*	(0.040)
22		Shared unit		-0.132**	(0.042)	0.122***	(0.029)	0.010	(0.037)
23			P-value^	0.987		0.146		0.217	
24	Apt/condo	Entire unit		-0.038	(0.069)	0.096	(0.056)	-0.059	(0.045)
25		Shared unit		-0.171	(0.090)	0.045	(0.069)	0.126	(0.084)
26			P-value^	0.179		0.488		0.036*	
27	Other	Entire unit		-0.217***	(0.059)	0.149***	(0.043)	0.068	(0.048)
28		Shared unit		-0.074	(0.086)	0.068	(0.052)	0.005	(0.071)
29			P-value^	0.187		0.263		0.458	
30	P-value^^			0.347		0.465		0.098	
SCI									
31	House	Entire unit		-0.485***	(0.040)	0.137***	(0.039)	0.348***	(0.045)
32		Shared unit		-0.512***	(0.039)	0.036	(0.027)	0.476***	(0.034)
33			P-value^	0.637		0.055		0.018*	
34	Apt/condo	Entire unit		-0.448***	(0.056)	0.038	(0.040)	0.409***	(0.051)
35		Shared unit		-0.424***	(0.086)	0.034	(0.062)	0.391***	(0.083)
36			P-value^	0.808		0.955		0.846	
37	Other	Entire unit		-0.543***	(0.057)	0.139***	(0.037)	0.404***	(0.050)
38		Shared unit		-0.528***	(0.068)	0.020	(0.042)	0.507***	(0.069)
39			P-value^	0.858		0.031*		0.193	
40	P-value^^			0.746		0.092		0.177	
n				3487					

*** p<0.001, ** p<0.01, * p<0.05

Standard errors in parentheses, adjusted for clustering by state*disability type. All regressions control for variables in Table 2.

^P-value for test of equality of effects across entire and shared units, within disability and lodging type.

Table A1: Descriptive statistics

	Overall	No disability	Blindness	Cerebral palsy	Dwarfism	Spinal cord injury
	(1)	(2)	(3)	(4)	(5)	(6)
Disability type						
No disability (excl.)	0.216	1.000	0.000	0.000	0.000	0.000
Blindness	0.195	0.000	1.000	0.000	0.000	0.000
CP	0.216	0.000	0.000	1.000	0.000	0.000
Dwarf	0.172	0.000	0.000	0.000	1.000	0.000
SCI	0.201	0.000	0.000	0.000	0.000	1.000
Unit type						
House (excl.)	0.562	0.553	0.585	0.545	0.588	0.544
Apt/condo	0.222	0.225	0.224	0.219	0.205	0.235
B&B	0.060	0.069	0.055	0.058	0.060	0.057
Other	0.156	0.153	0.136	0.178	0.146	0.164
Host gender						
Male+female (excl.)	0.120	0.116	0.111	0.142	0.106	0.120
All female	0.550	0.563	0.549	0.542	0.551	0.547
All male	0.310	0.301	0.316	0.296	0.327	0.315
Gender not reported	0.020	0.020	0.024	0.019	0.017	0.018
Number of bedrooms	1.293	1.270	1.337	1.269	1.308	1.290
(std. dev.)	(0.883)	(0.848)	(0.965)	(0.877)	(0.842)	(0.880)
Entire unit	0.479	0.482	0.492	0.46	0.478	0.482
Number of listings	3.368	2.969	3.001	3.946	3.760	3.199
(std. dev.)	(25.292)	(11.227)	(22.683)	(39.123)	(24.720)	(19.576)
Ln(# of listings)	0.429	0.454	0.408	0.436	0.464	0.383
(std. dev.)	(0.723)	(0.737)	(0.673)	(0.734)	(0.771)	(0.699)
6 or more listings	0.050	0.054	0.045	0.053	0.054	0.043
Daily rate	108.199	108.529	106.856	109.195	109.358	107.088
(std. dev.)	(109.132)	(108.553)	(107.180)	(142.017)	(93.114)	(80.172)
Ln(daily rate)	4.447	4.448	4.433	4.420	4.462	4.474
(std. dev.)	(0.637)	(0.635)	(0.635)	(0.652)	(0.655)	(0.607)
Advertised as "accessible"	0.066	0.048	0.068	0.075	0.063	0.074
After policy announcement	0.378	0.416	0.368	0.416	0.302	0.373
Region						
Northeast	0.179	0.166	0.184	0.166	0.208	0.178
South	0.350	0.335	0.371	0.335	0.356	0.359
Midwest	0.199	0.200	0.221	0.200	0.241	0.141
West	0.271	0.299	0.224	0.299	0.195	0.322
Sample size	3,847	830	750	830	663	774

APPENDIX

INITIAL CORRESPONDENCE TEMPLATES:

Cerebral Palsy
Hello! Hope you are doing well.
You've a great home that I am interested in renting for a weekend: from [DATE HERE] (Friday evening) through [DATE HERE] (Sunday afternoon). Is there availability? If so, please understand that I have cerebral palsy and have difficulty walking and climbing stairs. I need a home that can be used by someone with limited mobility. Thank you!

Blindness
Hello! Hope you are doing well.
You've a great home that I am interested in renting for a weekend: from [DATE HERE] (Friday evening) through [DATE HERE] (Sunday afternoon). Is there availability? If so, please understand that I am blind and use a guide dog. Thank you!

Spinal cord injury
Hello! Hope you are doing well.
You've a great home that I am interested in renting for a weekend: from [DATE HERE] (Friday evening) through [DATE HERE] (Sunday afternoon). Is there availability? If so, please understand that I cannot walk and use a wheelchair due to a spinal cord injury. Thank you!

Dwarfism
Hello! Hope you are doing well.
You've a great home that I am interested in renting for a weekend: from [DATE HERE] (Friday evening) through [DATE HERE] (Sunday afternoon). Is there availability? If so, please understand that I have dwarfism and need a home that can be used by someone with short stature. Thank you!

No Disability
Hello! Hope you are doing well.
You've a great home that I am interested in renting for a weekend: from [DATE HERE] (Friday evening) through [DATE HERE] (Sunday afternoon). Is there availability? Thank you!

RESPONSE TEMPLATE:

Hi there,

I appreciate the offer, but unfortunately I must change my travels plans that week, and will no longer be in the area :(
Thank you anyway!