

# Let's stay together? Combating discrimination on Airbnb

Global Perspectives Series: Paper 9

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December 2016

## SUMMARY

- Airbnb was founded in 2008 and is now a major actor in the accommodation industry. However, the company has faced increasing criticism about the existence of ethnic discrimination on its platform, both on the host and guest sides. This has led Airbnb to react and design an anti-discrimination policy, made public in September 2016.
- Two papers have recently documented 'ethnic price gaps' and the existence of discrimination against ethnic-minority guests (Edelman and Luca, 2015; Edelman, Luca and Sversky, forthcoming). However, little is known about which policies would be more efficient to fight discrimination, because we don't know which discriminatory processes are at work.
- This report draws on recent findings detailed in Laouéanan and Rathelot (2016), and examines the existence of discrimination on Airbnb across nineteen cities in North America and Europe with the largest number of listings.
- The research finds that hosts from ethnic minorities have prices which are on average 3.5% lower, after we account for very detailed characteristics and location.
- It also shows that the 'ethnic price gap' decreases starkly with an increased number of reviews. Among listings with more than twenty reviews, ethnic price gaps are smaller and statistically insignificant.
- These findings, combined with additional evidence using a longitudinal sample, suggest that most of the 'ethnic price gap' is due to statistical discrimination which could be best solved by improving the amount of information about listings and the reviewing process.

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# Let's Stay together? Combating discrimination on Airbnb

## INTRODUCTION

Airbnb was founded in 2008 and is now a major actor in the accommodation industry. Valued at more than **\$30bn after the last funding round**, the company faces increasing criticism about the existence of ethnic discrimination, both on the host and guest sides.<sup>1</sup> This has led Airbnb to react and design an anti-discrimination policy, made public in September. Two papers have recently documented ethnic price gaps and the existence of discrimination against ethnic-minority guests (Edelman and Luca, 2015; Edelman, Luca and Sversky, forthcoming). However, little is known about which policies would be most efficient to fight discrimination, because we don't know which discriminatory processes are at work.

This report draws on recent findings detailed in Laouénan and Rathelot (2016) and looks at nineteen cities in North America and Europe with the largest number of listings to examine the existence of discrimination on Airbnb.

## What is Airbnb? How does it work?

Airbnb is an online platform that aims at connecting hosts and guests. Hosts post a listing of the property they wish to rent. The listing includes a detailed description of the property (location, amenities), the price they charge for each night (as well as other fees and cancellation rules) and a description of the host (including a picture and a first name). Potential guests browse the website, usually by destination and price brackets. When they find a listing that they find appealing, they have to contact the host, who then decides whether or not to accept them. Financial transactions are managed by Airbnb (who collects a service fee).

After a guest has stayed at a property they are invited to write a review and to give a rating that reflects their experience. The number of reviews and the average rating obtained by a listing are two very salient measures of quality, along with the other characteristics.

Discrimination could occur on both sides of the market. When they browse the listings, potential guests could discriminate against listings or hosts. When hosts decide whether to accept a guest, they could discriminate against potential guests. In what follows, we will mostly focus on the potential discrimination exerted by potential guests against hosts. This choice is due to the availability of the data. Discrimination against guests is also a very relevant issue but we are unable to examine it with the data we have.

## Media attention

The issue of discrimination against African Americans on Airbnb has attracted increasing media attention over the last two years. Benjamin Edelman and Michael Luca, from the Harvard Business School, are the first scholars to have attempted to measure potential discrimination on the platform. In their pioneering work, first circulated in January 2014, they show that African American hosts in New York City have lower prices than White hosts (Edelman and Luca, 2015). This ethnic price gap persists when differences in amenities and listing characteristics are controlled for. This study suggests that discrimination may be at work in the market: potential guests would take race into account when they browse listings and make a choice for a place to stay. This study aroused media interest on the issue, and was reported both by media interested in internet companies ([The Verge](#), [Recode](#)) or more traditional papers and magazines ([The Telegraph](#), [Time](#), [Forbes](#)).<sup>2</sup>

Edelman, Luca and Svirsky (forthcoming) are seeking to investigate the other side of the market: do hosts take the ethnicity of a potential guest into account when they decide to let them stay at their place? They designed an experimental study, creating fake guest accounts, with identical features except for names, which are chosen to be distinctly African American or White sounding. Sending random requests from these accounts, they can measure the extent to which hosts discriminate. Their take-away message is a welcome warning: while online platforms wish to reduce user anonymity to enhance trust and reduce frictions, they could also generate discrimination.

This work received wider coverage than their original 2014 research. Mike McPhate ([New York Times](#), [11 December 2015](#)) reports the findings of the study but points to the fact that Airbnb chief executive, Brian Chesky, was quoted in 2013 as saying: “We believe anonymity has no place in the future of Airbnb or the sharing economy”.<sup>3</sup> Shankar Vedantam ([NPR](#), [Hidden Brain](#), [26 April 2016 \(updated on 20 September 2016\)](#)) starts from Edelman, Luca and Svirsky’s paper and draws on individual witnesses – African American hosts who report trouble in finding guests on Airbnb.<sup>4</sup> The podcast also comments on the emergence of the ‘#AirbnbWhileBlack’ hashtag, through which African-Americans who experience what they perceive as discrimination on Airbnb are detailing their experience.

Katie Benner ([New York Times](#), [June 19, 2016](#)) comments on the apparent paradox between the company’s new approach towards discrimination and the existence of a clause in the terms and conditions, which implies that users waive their right to be part of a class action against the company.<sup>5</sup> While the clause is not specific to discrimination, the article notes that class actions have been an effective device in the past to trigger changes on the discrimination front.

## Airbnb starts to react during the summer 2016

In June 2016, Airbnb formally mentioned fighting discrimination as a **corporate objective**.<sup>6</sup> They hired Eric Holder, the former United States Attorney General, to advise the company and help shape a policy against discrimination ([Katie Benner](#), [New York Times](#), [20 July 2016](#)).<sup>7</sup> Kristen Clarke, the president and executive director of the Lawyers’ Committee for Civil Rights Under Law, also analysed the issues in an Op-Ed ([New York Times](#), [22 August 2016](#)).<sup>8</sup> She pushed three main actions: carry audit studies

to keep on measuring the extent of discrimination; bar hosts found to display discriminatory behaviour; and, hide names and pictures and promote ‘Instant Booking’.

On September 8 2016, Airbnb made public a [report](#) they had commissioned from Laura W. Murphy, a former director of the American Civil Liberties Union’s Washington legislative office, about possible ways to “fight discrimination and build inclusion”.<sup>9</sup> The media reported that Airbnb is to start implementing some of the recommended actions ([Katie Benner, New York Times, 8 September 2016](#)).<sup>10</sup> First, Airbnb pledges to set up a “community commitment”, that all users, hosts and guests, should sign to be allowed to keep on using the platform. This commitment was publicised on October 30, by an email sent to all active users of the website, and includes the promise not to act in a discriminatory manner on the platform. Second, the platform wants to downplay the prominence of names and pictures: the default result of a search now displays a list of properties from which the pictures and first name of the hosts are absent. Clicking on a listing is enough to find the information but concealing hosts’ names and pictures makes it less easy to use the information as one of the first selection criteria. Third, Instant Booking should be encouraged. Instant Booking is a feature of the platform in which the host accepts to waive their right to refuse requests from potential guests. By design, Instant Booking hosts cannot discriminate against any guests.

This new set of policies might not solve all problems. Benjamin Edelman, one of the authors of the two academic studies on the topic, wrote a [long blog post](#) to comment on Airbnb’s new rules.<sup>11</sup> Among other problems, Edelman finds Airbnb’s response is too shy, arguing that Airbnb should have just removed guest names and pictures from booking requests.

### Airbnb as one of the big actors in the ‘sharing economy’

Studying Airbnb, as a flagship of the so-called ‘sharing economy’, is interesting in itself. It is also informative about how discrimination can arise in other platforms. As the market share of these platforms increases, it is important to understand whether pervasive problems (like discrimination) that affected traditional markets are solved or, on the contrary, exacerbated by the features of online marketplaces.

## WHERE DOES DISCRIMINATION COME FROM?

### Understanding the mechanisms underlying discrimination

Decades after providing evidence for ethnic gaps in the labour market, the housing market, the credit market and many others (goods etc.), these gaps are still persistent and large. Policies may have managed to attenuate some differentials but not to make them disappear. One of the reasons is that there is no broad consensus about the mechanisms by why discrimination exists (and persists).

Economists have attempted to distinguish two main families of discriminatory processes. The first one, often referred to as **taste-based discrimination**, was theorised by Gary Becker in the late fifties. Under this theory, some individuals would be relatively unhappy to interact with some ethnic minority groups rather than others. Becker does not elaborate on where this loss in utility (as he frames it) comes from, but it is considered in Becker’s theory as pre-defined, fixed and idiosyncratic: new information

about quality will not change how the discriminators perceives the minority group as some individuals are more disposed to disliking interactions with ethnic minorities. If these discriminators are numerous, they will end up driving down both demand and prices.

At the other end of the theoretical spectrum is **statistical discrimination**, first introduced in the seventies. In its earliest form, it states that all agents are rational and have no reason to dislike the minority group. However, on Airbnb the quality of listings is imperfectly observable and guests use all available information to formulate the best prediction about a listing. If, on average, listings proposed by ethnic minority hosts are of lower quality, but higher quality ones have limited ways to signal how good they are, guests will use the information about ethnicity to penalise ethnic-minority listings, who then get lower demand and have to set lower prices.

More sophisticated models of statistical discrimination allow guests' beliefs to be proven erroneous: they would assume that the average quality of minority's listings is worse than what it actually is. We still categorise this form of prejudice as statistical discrimination if, when guests receive new information about the quality of a listing, they revise their beliefs about quality accordingly.

### Designing efficient policies

Understanding the source of discrimination is important to the design of efficient policies to fight ethnic and racial inequalities. A natural and implicit bias is to assume that discrimination is due to taste-based motives. This leads to policies that are, in general, based on hiding part of the information about agents. In the labour market, anonymising résumés in order to strip all information relating to gender and ethnicity is commonplace in many countries. However, the empirical evidence about these policies is ambiguous. Åslund and Nordström Skans (2012), in Sweden, and Krause et al. (2012), in Germany, find encouraging results about the effectiveness of anonymous résumés in reducing hiring gaps. However, Behaghel et al. (2015), in France, show that anonymous résumés may have detrimental effects on ethnic-minority job seekers. To explain this counter-intuitive result they show that, in the absence of anonymisation, employers treat applications from ethnic minority candidates differently: to an extent, they attenuate some of the negative signals in the résumé. For instance, interrupted job histories would be less penalised for minority applicants. Anonymisation prevents this process and ethnic-minority résumés suffer from it.

Conversely, policies which may have been thought of as detrimental to ethnic minorities can be found to have favourable effects. Wozniak (2015) examines the impact of drug testing regulations on hiring rates for African Americans. She finds that "adoption of protesting legislation increases black employment in the testing sector by 7% to 30% and relative wages by 1.4% to 13.0%, with the largest shifts among low-skilled black men." Such a positive impact implies that African Americans are subject to some form of ex ante statistical discrimination. Employers believe that African Americans use drugs more frequently than White Americans and, in the absence of the test, employers are not able to revise their beliefs and distinguish who among the applicants is using drugs. In the case of this policy, helping employers acquire information about workers reduces the amount of discrimination in the labour market.

In the remainder of this report, we summarise the results reported in Laouénan and Rathelot (2016) about the extent of ethnic price gaps on Airbnb and which kind of discrimination theory they are compatible with. This will allow us to formulate additional policy recommendations.

## ETHNIC PRICE GAPS ON AIRBNB

### Data, sample and definition of ethnicity

We have collected data for nineteen cities in North America and Europe (London, Paris, Madrid, Barcelona, Rome, Milan, Florence, Amsterdam, Berlin, Marseille, Vancouver, Toronto, Montreal, Boston, New York City, Miami, Chicago, San Francisco, Los Angeles) with the largest number of listings. For each city, we have collected data for all listings that appear on the website. For each listing, we have coded the price per night, as well as all publicly available characteristics of the listing. Of particular interest are the details of amenities available in the property, the first names of the host, the number of reviews and the average rating of the listing by reviewers. We have repeated the collection process twenty times between June 2014 and July 2015, which allows us to track the evolution of prices and characteristics of listings over time. Overall, the data contains more than 3 million observations on more than 350,000 properties.

We focus on two particular ethnicities. Listings with a Muslim, Arabic or North African first name are coded as ethnic minorities in all cities of our sample; and pictures of North American hosts are coded to reflect whether the host could be considered an African American and, if so, are classified as ethnic minorities too. With this twofold definition of ethnic minorities, we find that 5.3% of the listings have a host belonging to an ethnic minority. There are more ethnic minority hosts in some cities than others: 11.4% of hosts in New York City and 0.8% in Rome.

Because we only use publicly available data, we are not able to track transactions or the occupation status of properties. The dimension we focus on in what follows are listing prices per night. The theory being that if ethnic-minority hosts are discriminated against, they respond by lowering their prices.

### Ethnic minority hosts set lower prices

Our data shows that ethnic minority hosts on Airbnb are 16% cheaper than the others. This raw gap varies drastically by continent and ethnic group: 31% for African Americans in North America, 5% for hosts with Muslim or Arabic names in North America, and 9% for hosts with Muslim or Arabic names in Europe.

These differences may reflect the fact that ethnic minority have properties in less desirable neighbourhoods or that their apartments have worse amenities. The second stage of the analysis is to control for differences in location and properties characteristics. Table 1 shows how the ethnic price gap varies when we control, on top of cities and observation date (column 1), for detailed property characteristics (column 2), neighbourhoods (column 3) and everything together (column 4).

**Table 1: Airbnb ethnic price gap when controlling for: (1) city and observation date; (2) property characteristics; (3) location; (4) all of these factors**

<b>Controls</b>	(1)	(2)	(3)	(4)
<b>Ethnic gap</b>	-0.161*	-0.101*	-0.070*	-0.032*

*Note: Stars means that these ethnic gaps are statistically different from zero (at the level of 1%).*

Table 1 shows that, indeed, listings proposed by ethnic-minority hosts are more frequently located in areas that are less expensive and are less likely to have as many amenities as the other listings. Controlling by both these dimensions reduces the price gap to roughly 3.5%. Almost 80% of the initial ethnic price gap can be accounted for by differentials in location and property characteristics. However, a price gap of 3.5% is unaccounted for. This residual price gap does not vary significantly across ethnicity and continent: 4.3% for Muslim/Arabic hosts in Europe, 2.9% for the same ethnic group in North America and 2% for African Americans in North America.

Where does this residual price gap come from?

- A first possible mechanism is taste-based discrimination. If guests have an intrinsic distaste to rent a property whose host belongs to an ethnic minority, this will translate into a lower demand and lower prices for hosts.
- A second explanation is that guests, having imperfect knowledge about the quality of the listing, hypothesise that the average quality of a listing with an ethnic-minority host is lower. This belief can be true, partially wrong or totally wrong. This explanation differs from the previous one in that guests will revise their beliefs when they receive additional information about the quality of the listing.
- A third explanation is that guests observe quality better than we do. They see the pictures of the property and read the text description, which are elements we cannot control for. It is possible that, on these dimensions, the listings with ethnic minority hosts are not as good as the others.
- Finally, prices may result from other determinants than just demand. For instance, because ethnic minority workers are known to be discriminated against on the labour market, they might have lower returns to their work activities outside Airbnb. Therefore, they might be willing to boost demand for their Airbnb by setting lower prices.

The previously reported results do not allow us to disentangle these mechanisms.

## The ethnic price gap decreases with the number of reviews

Starting from the last specification, in Table 2 we calculate the residual ethnic price gap (controlling for city, observation wave, neighbourhood, detailed characteristics and ratings) for several subsamples defined by the number of reviews.

**Table 2: Airbnb ethnic price gap by number of reviews**

Reviews	0	1-4	5-19	20-49	50+
<b>Ethnic gap</b>	-0.033*	-0.030*	-0.024*	-0.012	-0.011

*Note: Stars means that these ethnic gaps are statistically different from zero (at the level of 1%).*

As the number of reviews grows, the residual ethnic price gap decreases. On the subsample of listings with more than 20 reviews, the gap is roughly equal to 1% and is no longer statistically significant.

We also calculate the share of minority listings in each of these subsamples, we see that it oscillates between 5.3 and 5.4%. This finding suggests that the decreasing pattern does not reflect the fact that there are fewer minority listings as the number of reviews increase.

More convincingly, we estimate how prices evolve with the number of reviews, within a listing, taking advantage of the longitudinal dimension of the data. We observe several important conclusions:

- First, ratings and reviews seem to matter for prices. This shows that there is indeed some relevant information in the ratings and that listings with more reviews have more information to display than those with less reviews. In our sample, we estimate that a listing whose last rating is 5 stars (the best possible grade) increases its price by 7% when it goes from 0 to 20 reviews. As a comparison, a listing whose last rating is 4 stars does not experience any increase.
- Listings with an ethnic-minority host experience larger increases when they receive a new review than the others do. This result is consistent with the previous table: as they receive new reviews, listings with an ethnic-minority host seem to catch up with the others. The revelation of information by the reviewing system seems to allow guests to rely on this new information rather than on ethnicity.

Our findings are compatible with the existence of statistical discrimination on this market. Can we quantify how much of the residual ethnic price gap can be accounted by this mechanism? In the paper, we attempt to do so. It comes at the cost of imposing more structure on the data: we impose the functional form between the price and the number of reviews and estimate the parameters of this relationship. Our estimates suggest that roughly two thirds of the residual price gap are due to statistical discrimination (i.e. are not tied to ethnicity when the number of reviews becomes large).

## Discussion of alternative explanations for price gap

According to our results, a large part (but not all) of the residual price gap is due to statistical discrimination. This means that, as listings accumulate reviews and increase the information set available to guests, guests are less likely to use the ethnicity of the host to determine where they want to stay.

Can we say something about the remaining price gap? We investigate how listings with minority hosts accumulate more reviews than the others, when we account for the price. If minority hosts ask for lower prices to boost demand, for the same level of quality (and in the absence of discrimination), this translates into higher demand. Higher demand would entail a larger increase in the number of reviews between two periods. This is not what we observe. Controlling for prices, minority listings accumulate the same number of reviews as the others between two consecutive periods. This finding suggests that the price gap does not come from differences in price-setting behaviour across ethnic groups.

There are two remaining explanations for the remaining price gap: sheer discrimination and differentials in the characteristics that are invisible for us but available to guests (e.g. pictures, text descriptions).

## CONCLUSIONS AND RECOMMENDATIONS

If most of the ethnic price gap is driven by statistical discrimination, an avenue to reduce price gaps is to improve the speed at which the information about the quality of a listing is revealed. While our results suggest that the current review system is fairly successful at eliciting and providing relevant information to potential guests, improving it would benefit to all actors on the platform, especially ethnic minorities (or any other groups who may suffer from substantial statistical discrimination). Our analysis cannot pin down which changes would be most relevant but, as Airbnb pledged to fight discrimination, this is an avenue the platform cannot ignore. Here are a few possible ways:

- The reviewing rate is not publicly available on Airbnb but anecdotal evidence suggests it is far from 100%. Increasing the reviewing rate would mechanically increase the speed at which information is revealed and curb statistical discrimination. To achieve this effect, might it be possible for Airbnb to somehow incentivise guests to write reviews?
- Ratings could be more informative if the full scale was used. Right now, the distribution is skewed towards 5 stars and very few listings have less than 4 stars. Instead of displaying stars, Airbnb could display the rank (e.g. top 15%) of a listing, in the city and within some categories, to increase the amount of information provided to potential guests.
- While the average rating of a listing is public, the individual ratings given by each reviewer are hidden. This choice might reduce the information available to potential guests. Potential guests may be sensitive to the variance or other moments of the distribution. They might also feel closer to some reviewers than to others and put more weight on their ratings.

- There might be a bias in reviews. Guests who had a good relationship with their hosts might not feel comfortable to flag problems (especially small problems) as they know bad reviews or ratings are detrimental to hosts. This bias and other determinants of reviews are studied by Fradkin and co-authors (Fradkin et al. 2015). How to mitigate this issue is unclear. One way would be to ask a set of very precise yes-or-no questions about the listing: lying might be more difficult than omitting details.

If most of the ethnic price gap is driven by statistical discrimination rather than taste-based discrimination, what will be the result of the current policy by Airbnb? First, the current awareness campaign will not have much of an effect. Statistical discriminators are not evil, so to speak: they are using all the available information to formulate predictions about the quality of a listing. They may be misinformed or prejudiced, in the sense that their expectations do not entirely reflect the truth. The solution might lie in more information rather than Airbnb's favoured policy of more awareness. Second, concealing the picture or the name of the host will mechanically reduce ethnic gaps along these criteria. However, it is likely that guests will end up relying on other details in order to make decisions and indeed to discriminate. In the U.S., where spatial segregation by ethnicity is high, the result might be to increase geographic discrimination. Potential guests might also look for hints about the host's ethnicity from the remaining pictures or the text description. Another possible downside of removing information from the platform is to induce, for good or bad reasons, guests to choose other platforms or to spend more time pondering between different options or acquiring information about the listings. This would detract from the benefits of sharing economy platforms and may be disproportionate when other means to reduce discrimination – guest ratings, as explored in this paper – may already be highly effective.

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## ENDNOTES

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