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in the Italian rental housing market**

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## **Abstract**

With a field experiment carried out on the Internet, this paper studies the presence of discrimination in the Italian rental housing market against persons whose names are distinctive of different ethnic groups and gender. Further, we investigate whether providing information on the job or personal characteristics of the applicant may reduce the extent of discrimination. We also study if sending ill-formed emails negatively affects immigrants' chances of success in receiving a positive response. We created twelve fictitious individuals: four with Italian-sounding names, four with typical Arab/Muslim names and four with East European-sounding names. We made these individuals send emails to apply for vacant rental apartments in 41 Italian cities. The results provide a multifaceted picture. The degree of discrimination varies across ethnic groups, genders and the level of information, but seems to be present only in part of the country, and is also closely correlated with the size of the flat. Perfect mastery of the receiving-country's language does not play an important role.

## *1. Introduction*

Article 21 of the Charter of Fundamental Rights of the European Union proclaimed in Nice in 2000 states: "Any discrimination based on any ground such as sex, race, colour, ethnic or social origin, genetic features, language, religion or belief, political or any other opinion, membership of a national minority, property, birth, disability, age or sexual orientation shall be prohibited." A form of discrimination can be detected when a person or a group of persons tend to be treated differently from other persons or groups on the basis of their belonging to particular categories, without any other objective justification. This paper studies whether there are such disparities of treatment, by gender or ethnic origin, in the access to the Italian rental housing market.

The availability of accommodation is a primary necessity for any life worth living, and its lack is one of the main causes of social exclusion. For immigrants, a decent dwelling is also an essential condition for the possibility of family reunification with relatives abroad, and is important in determining opportunities to have a job and to benefit from services like education and healthcare. A housing market characterized by the presence of ethnic discrimination does not favour integration, and may have many negative lasting consequences.

Italy is now a high immigration country: in 2009 the number of foreign-born residents reached 3.9 million, more than double the number of six years before. This rapidly growing presence of immigrants, plus the economic crisis of the last few years, may have affected native born Italians' attitude towards them.

Recently, many field experiments have been performed in order to verify whether there is discrimination in the rental market. In Spain, Sweden and the USA, where these experiments have been conducted, the answer is positive. Furthermore, in Sweden and the USA the discriminatory behaviour appears to be the result of a hostile attitude towards immigrants, while in Spain evidence

has been found of a discriminatory component due also to the lack of correct information about the applicant: in the absence of further information, a person with an Arab/Muslim name tends to be associated, merely for belonging to that specific ethnic group, to a lower ability to pay. Her/his application is therefore more likely to be dismissed.

Like these previous studies, we make use of the Internet to detect the presence of discrimination in the Italian rental housing market. We created twelve fictitious identities and let them apply to vacant rental apartments advertised on a generalist well-known buy-and-sell web site. We chose both female and male names denoting an Italian, East European and Arab/Muslim origin. While some of the previous literature has investigated the discrimination towards Arab names, the comparison with a third ethnic group is only rarely present. We chose to consider also this other ethnic group because immigration from East Europe has been massive in Italy in the last few years, following the EU expansions of 2004 and 2007. People from the former communist block are perhaps not so culturally distant from Italians as those coming from Northern Africa or the Middle East, so it is interesting to check whether there is a difference in the degree of discrimination against various ethnic groups. In 2009, about 24% of foreign born residents in Italy came from East European countries, and nearly 16% from Northern Africa<sup>1</sup>.

Each individual applies to the vacant rental apartments offered on the web-site: half of the e-mails sent by the applicants show only their interest for the apartment, while the other half also contain some positive information about the economic and social conditions of the applicant. We then compared the responses obtained by the different submissions, concentrating in particular on the differences, by gender and ethnic origin, in the rates of positive responses received. To verify if ill-formed applications affect immigrants' chances of success in receiving a positive response, we finally let our candidates with Arab/Muslim and East-European sounding names send a sample of e-mails containing grammatical errors. Section 2 that follows contains a review of the relevant literature. Section 3 describes the experimental design and the structure of the experiment. Then follow the results and their discussion, and section 5 provides some conclusions.

## *2. Literature review*

The housing discrimination literature has formalised two main causes of discriminatory behaviour: the presence of prejudices and the ignorance of some relevant information. In the first case discrimination is based on preferences, either of the agent or of the customer. This means that the person who discriminates can follow personal hostile attitudes, or comply with the prejudiced attitude of the group of people to which he/she is tied because of their business relationships (Becker, 1957; Yinger, 1986). The amount and quality of information provided by the applicants do not affect the discriminatory behaviour, because the person who discriminates is willing to forgo a profitable opportunity precisely to avoid any interaction with them.

The lack of information on the economic and social characteristics of the applicant gives rise, instead, to the statistical discrimination (Phelps, 1972; Aigner and Cain, 1977): gender or a particular ethnic origin are taken as proxies for unknown characteristics, that tend therefore to be inferred from those on average observed in the different groups. If the source of discrimination is only statistical, then the provision of more (positive) information on the economic and social conditions should reassure the counterpart and reduce discriminatory behaviour.

Field experiments to measure discrimination in markets, and to distinguish its causes, have been conducted since the '60s, but only during the '80s has this technique found a place in the main economic journals. The studies have mainly dealt with the labour market, but also with the housing and the product markets (see Riach and Rich 2002 for a detailed review). Traditionally, the

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<sup>1</sup> Source: <http://demo.istat.it/>.

experiments were conducted using a personal approach: couples of testers, differing by gender or ethnic origin, were trained to enquire for apartments or jobs holding similar conversations with the counterparts. Then a direct contact followed, by phone or in person. This method is quite expensive in terms of both energies and direct costs, and presents some weaknesses (Heckman and Siegelman, 1993; Heckman, 1998). First, the technique requires the testers to be identical in all relevant aspects other than ethnic origin or gender. Even if they are in-depth and carefully trained, it is impossible to control for all possible sources of bias: differences in the traits of testers' personality will inevitably remain and prevent the realization of completely equal conditions. Secondly, the testers are aware of the objective of the study, and thus may target their behaviour towards corroboration or rejection of their expectations.

In the last few years a new approach has gained ground, taking advantage of the growing diffusion of the Internet: the application is written and sent by email, thus enabling really equal conditions to be created, differentiating only the variables of interest. In our case these are gender and ethnic origin, signalled only by the names of the applicants.

This approach in the rental housing market was used for the first time by Carpusor and Loges (2006): their results show that in Los Angeles County the Afro-American- and Arab-sounding names receive less callbacks than the white-sounding names, and that Afro-Americans are the ethnic group most discriminated. A similar study has been conducted in Sweden by Ahmed and Hammarstedt (2008), who found the presence of both ethnic and gender discrimination. Subsequently, the same authors (2010) investigated the relationship between information and discrimination: the disadvantage for the Arab-sounding names persists even for those applications that provide positive pieces of information that should reassure the potential lenders. Conducting a similar experiment, Bosch, Carnero and Farré (2010) find that, in the Spanish rental market, the provision of positive information reduces discrimination against Arab/Muslim names, without eliminating it.

Our work is the first field experiment conducted using Internet to measure discrimination in the Italian rental housing market. Unlike from the studies cited above, we consider simultaneously both genders and three ethnic groups. An important share of the sample of e-mails sent was also written with some spelling mistakes, so as to verify whether the extent of discrimination depends also on possible indicators of the "quality" of the applicant other than the mere signature. This point has not been investigated by previous research in the rental housing field. Further, the dimension of the sample allows us to study whether discrimination is more intense in some parts of the country; given the highly heterogeneous distribution of immigrants across Italian Regions, this issue is of particular interest.

### *3. The experimental design*

The main aim of our research is to study whether we observe different treatments by ethnic origin or gender in the access to the Italian rental market. Further, we wish to verify which role can be attributed to the provision of personal information on the probability of being discriminated. Finally, we investigate if sending ill-formed emails negatively affects immigrants' chances of success in receiving a positive response. We used the Internet to select a sample of housing units offered for rent in major Italian towns, and made our fictitious candidates apply. In half of the cases the applicant only shows his/her own interest for the apartment, while in the other half of cases the applicant has added some information on his/her personal economic and social condition, in order to reassure the landlord about his/her reliability. We sent 3,051 emails written in a correct form: the structure, the syntax and the type of information are the same for all the candidates. The only distinctive element is given by the name of the applicant, which must immediately refer the reader to a certain gender and ethnic group. We then let our candidates with typical Arab/Muslim and East-European names apply to other 625 vacant rental apartment sending ill-formed emails. We

started to send the emails on March 1 and recorded the response until July 3, 2010. The final sample contains 3,676 observations. A more detailed description of the procedure followed is provided in the rest of this section.

For the choice of the site, we started by typing the words “case affitto” (accommodation for rent) in the Google search engine. Among the results, we chose the buy-and-sell website with the highest number of daily single visitors, i.e. [www.subito.it](http://www.subito.it), a site containing ads not only related to housing but covering many categories, from cars to electronic products to clothing. Since the Internet is not the only channel that can be used to look for vacant rental housing units, we cannot exclude that the characteristics of web users are not representative of the whole rental market. In this case, our results would provide only a partial picture.

We created twelve fictitious identities to apply as potential renters for the apartment on the Internet website. Besides the gender, the names represent three different ethnic groups: Italian, Arab-Muslim and East European. The choice of the Arab group was more or less obligatory, given the previous literature, the group’s presence in Italy and the great cultural differences between Arabs and Italians. We also chose to consider names typically owned by people from East Europe so as to verify possible differences in the degree of discrimination and in the role of information in reducing it. Each name and surname was chosen after controlling the name statistics available for Italy, by gender and ethnic group. For each gender and ethnic origin we created two identities. All of them sent applications with and without information on their personal economic and social condition. The names are as follows: Francesco Colombo, Alessandro Conti, Giulia Moretti, Francesca Russo, Ahmed Hossain, Youssef Khelifi, Aicha Rahman, Khadija Akter, Andrei Jovanovic, Mihail Bogdan, Iryna Ivanova, Rodica Nikolic. Since both the gender and the ethnic origin are communicated to the reader only implicitly through the name, we cannot exclude that they go unnoticed, or even that they are misinterpreted, by the counterpart. We cannot know whether this event has occurred and how many times.

For each of the fictitious applicants we created an email account to be used in the correspondence with the counterpart. The provider we chose is Gmail, since it does not require information on geographic origin. All addresses were created according to the following pattern: [name.surname@gmail.com](mailto:name.surname@gmail.com). In cases where this simple expression was not available, we added a number after the surname.

All e-mails have the same structure: they begin with a greeting and an introductory statement containing the applicant’s name, continue with a statement of interest for the flat, in half of the cases add some information about the applicant, then ask for the possibility to visit the flat and finally end with the signature. The items of information concern the job position (having an unlimited employment contract, or working in a bank or as an engineer), the family situation (being married, having children or not), the possibility to provide positive references, not being a smoker or not having pets. The only information always provided is the availability to send references. The other items of information were used according to various combinations and formulations, in order to avoid the risk that mails sent with different names might be associated with the same author. For both Italian and foreign names we mostly used the same correct syntax, so as to preserve equality of conditions and as an implicit sign of integration. Here we show two examples of possible texts: the first omits any set of personal information — which instead is included in the second example.

*Hello,  
my name is Iryna Ivanova and I am writing in response to your ad..  
If it is still available, I would be interested in fixing a meeting to see the apartment.  
Hoping in an answer from you,  
Thanks for your time,  
Iryna Ivanova*

*Good Morning,*

*I am interested in renting the apartment in the ad.  
My name is Ahmed Hossain, I am married without children, and have an unlimited job contract as a clerk. Good references are available. Is it possible to make a date to visit the apartment?  
Looking forward to hearing from you,  
Sincerely,  
Ahmed Hossain*

All the possible combinations of these pieces of information have been used for all candidates. The ill-formed e-mails maintain the same structure and provide the same pieces of information, but contain some grammatical errors<sup>2</sup>.

We focused on the 35 major Italian cities in terms of resident population, plus the principal cities from the regions that otherwise would remain excluded. The total number of cities is therefore 41, spread across the whole national territory, with a wide variation in the percentage of legally resident foreigners in the total population (from 0,4% in Taranto to 16.5% in Brescia). After setting the objective of around 3,000 e-mails, the number of applications for each city was determined proportionally to the share of resident population on the total population of the 41 selected cities. The number of e-mails sent in each city ranges from 679 for the biggest (Rome) and 364 for the second (Milan) to 12 for the smallest (Aosta).

In each city we applied only for vacant rental apartments with at least two rooms and 60 square meters, i.e. with suitable dimensions for a family of two persons or more. Further, in the biggest cities we dropped from the sample the housing units with monthly rent below the 10<sup>th</sup> or above the 95<sup>th</sup> percentile of the rent distribution in each city. These percentiles were computed using all the ads present in the website on the first day of the experiment. In this way we try to exclude from the analysis the flats that are either too luxury or of too low quality, or to avoid misplaced postings. At the same time, we kept in the sample about 170 flats for which no information about the rent was present. The ads that required contact by phone or in person have been excluded, as well as those that required only a particular gender or nationality.

We used a random assignment procedure to submit the requests, as do Carpusor and Loges (2006) and Ahmed, Andersson and Hammarstedt (2010) in their papers: each landlord was approached by only one of the applicants. In order to avoid sending multiple e-mails to the same address in the same city, we checked for the phone number, the address and the photos present in each ad. Only for a few very small cities did we depart from this rule, so as to reach the required number of applications, but always guaranteeing that no more than two e-mails were sent to the same agency, after an interval of some days, and by different applicants from different ethnic groups. The alternative procedure used in the literature, known as matched application, consists in sending within a short time interval at least two e-mails by different nationalities for the same flat. We considered that this method could expose the applications to the risk of not being seriously taken into consideration, if the e-mails are perceived as excessively similar. This risk could be particularly serious in the Italian rental market, where many ads on the web or in the press that are apparently posted by private persons are actually managed by real estate agencies. The frequent presence of many ads posted by the same private name reinforces this suspicion. In practice, we assigned each candidate a number from 1 to 12 and followed this order cyclically in making them

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<sup>2</sup> This is an example that tries to render into English the sense of the mistakes introduced in the Italian language:  
“Hi,

*I am writing with regard of your apartment in ad.  
The my name is Youssef Khelifi and i am interested to visit it. Good reference possible. I have wife, no child, no smoking. We can arrange a meeting? Hope you answer, sincerely  
Youssef Khelifi”*

apply to all vacant rental apartments that met our criteria, from the ad most recently posted to the oldest one, until we reached the desired number of contacts for each city. Each candidate sent alternatively an e-mail without information and an e-mail providing information about himself/herself. All candidates provided cyclically all possible combinations of the items of information considered.

The data collected during the experiment contain for each available unit the following pieces of information: the city in which it is located, the monthly rental cost, the number of rooms and the size of the flat, whether the phone number of the landlord is present in the text of the ad, whether references are required or not, and the furniture situation. We also recorded some relevant dates – when the ad was published, when the application was sent and when a response was received – whether the application contained (or not) information on the economic and social conditions of the candidate, and if the written form of the e-mail was correct or not. Finally, we recorded the type of response received, if any. The website used requires for each ad the presence of a nickname for the person or agency that posted it. However, this name could have nothing in common with the real identity. About half of the ads that we applied for appear to have been posted by agencies and the other half by private subjects, but the caveat mentioned above about the identity of the offerer should be kept in mind.

In order to classify the results of our e-mails, we defined some response categories. First of all, the basic distinction is between the complete absence of a reply, the presence of a negative reply or the presence of a positive one. The negative replies were further distinguished in sharply negative without motivation, negative with a reason, implicitly negative and negative on that specific flat but with the possibility of further contacts for other solutions. Similarly, the positive responses were distinguished in: implicitly positive or requiring a phone contact, responses in which other requirements were indicated, responses asking for more information concerning (the quality of) the applicant, responses propose direct visit to the flat, responses that are positive but with some discouraging element (the apartment is available but the landlord doesn't attempt to promote further contact or interaction), and finally the responses that are positive but only if particular conditions are fulfilled (the housing unit is technically available, but an application has already been submitted and the unit will only be available if this application falls through). Other possible reactions are the automatic responses and those that raise the amount of the rent. We politely declined all responses that asked for further contact or invited to showings. On average, the interval between sending the e-mail and the reply, if present, is 1.4 days. The reply arrived within 20 days in 99.5% of the cases. None of the results that follow is influenced by the presence of the 11 replies that we received after 20 days from sending the application.

#### 4. Results and discussion

Table 1 shows some descriptive statistics about the flats to which we applied, for each city. The higher rents per square meter were found in the bigger cities (Rome, Milan and Naples), as well as in Florence, Venice and Bolzano. In Southern towns rents are significantly lower, while the average size of the flat is greater than in the rest of the country.

TAB. 1. CHARACTERISTICS OF THE FLATS

Town	N° Obs	Average monthly rent	Median monthly rent	Square meters	Average rent/square meter
Rome	679	1230	1150	86.4	14.6
Milan	364	1155	1000	86.6	13.6
Naples	256	932	850	92.9	10.3
Turin	208	644	600	83.6	8.0
Palermo	176	692	650	100.4	7.4

Genoa	169	785	750	88.5	9.3
Bologna	147	787	760	82.5	9.8
Florence	140	1083	1000	94.7	12.0
Bari	91	768	700	93.1	8.5
Catania	83	718	650	104.3	7.2
Venice	85	821	750	79.8	10.8
Verona	72	615	570	82.0	7.8
Messina	67	595	600	99.5	6.2
Padova	69	716	650	98.4	7.7
Trieste	56	645	600	87.3	7.8
Taranto	58	532	500	97.4	5.7
Brescia	55	630	600	88.8	7.5
Reggio Calabria	53	480	425	118.7	4.5
Prato	53	779	750	86.5	9.4
Parma	51	671	655	82.1	8.5
Modena	54	658	642	85.9	8.0
Reggio Emilia	47	552	550	79.3	7.4
Perugia	48	645	600	78.9	8.3
Livorno	45	752	750	79.9	9.8
Cagliari	45	799	800	95.2	8.8
Ravenna	43	623	600	80.7	7.8
Foggia	38	477	500	88.1	5.8
Salerno	45	924	850	110.4	8.6
Rimini	41	729	715	83.4	9.4
Ferrara	38	582	555	79.9	7.5
Sassari	36	584	550	98.6	6.3
Siracusa	36	539	550	97.3	5.8
Pescara	32	574	575	91.7	6.5
Monza	32	741	650	83.1	8.9
Latina	31	633	600	80.9	8.0
Trento	30	725	650	90.2	8.3
Ancona	28	675	660	89.0	8.1
Bolzano	27	897	850	88.4	10.6
Potenza	20	517	500	91.5	6.0
Campobasso	16	503	450	90.0	5.7
Aosta	12	589	625	88.8	6.3
Total	3,676	869	800	89.4	10.1

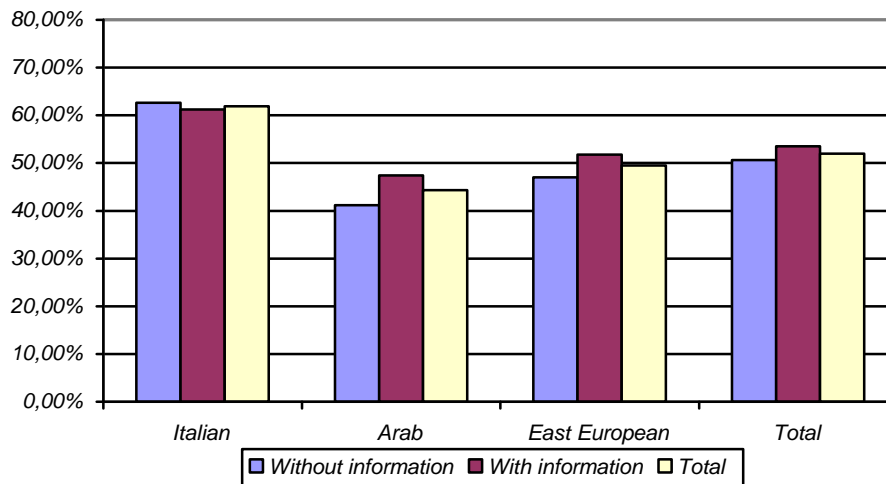
Overall, more than half the total e-mails sent received a positive reply (50.8%), while for less than 7% the reply was negative. The foreign names are over-represented in the subset that did not receive any reply, while the negative and positive answers mainly concerned the Italian names. It appears therefore that there is a tendency to ignore the e-mails with foreign signatures, if the offerer does not wish to satisfy their requests. Unless otherwise indicated, the results presented in what follows refer to the sample of applications that do not contain mistakes, so that the e-mails differ only in one dimension, the names signing them. We then separately study the effects that the presence of bad spelling have on the probability of receiving a positive reply.

Fig. 1 shows the share of positive replies obtained by the different ethnic groups in the sample of e-mails written with correct syntax, without distinguishing by gender. On average, the share of e-mails sent by Italian names that obtained a positive reply is 62%, with a very small difference between the e-mails that contained information about the sender and the others. In the case of Arab names, only 44% of the e-mails sent got a positive reply, with a clear increase for the e-mails that contain information on the quality of the person (41% against 47%). In terms of a



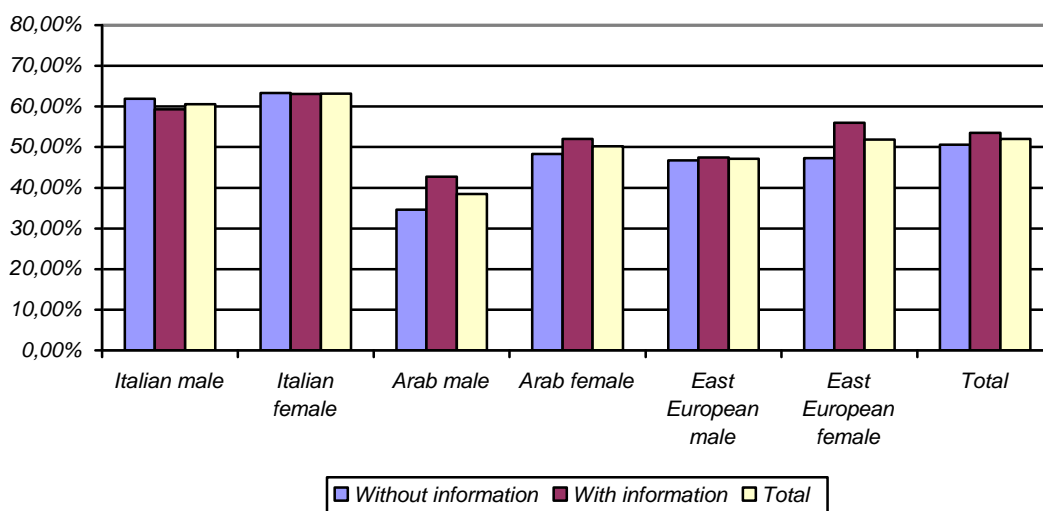
simple difference in means between the probabilities of receiving a positive reply, therefore, the discrimination between Italian and Arab names is about 18%. E-mails signed by typical East European names show a lower degree of discrimination than the Arab ones (12%), since the probability of a positive reply is around 50%, and in this case also the rate of positive replies is greater for the applications that contain information on job or family conditions.

FIG. 1 % OF POSITIVE REPLIES RECEIVED, BY NAME



Disaggregating the results by gender (fig. 2), discrimination is higher against masculine foreign names, in particular for the Arab group. Women, also in the case of Italian names, had a higher probability of positive response than males. The importance of additional information is high in particular for Arab males and East European females, but is clear also for the subsample of Arabic females.

FIG. 2. % OF POSITIVE REPLIES RECEIVED, BY NAME AND GENDER



Discrimination against foreign names seems much higher in Northern Italy, as table 2 shows, particularly against Arab males. The table contains the differences between the rates of positive reply for each nationality by gender and area, and the t test of their significance. For example, -0.176 means that, for the whole sample, all Arabic names have a probability of receiving a positive reply that is lower by 17.6% than the Italian names, and this difference is statistically significant at the 5% level. Comparing between Arab and Italian names, the difference is almost

always significant, with the exception of females in Central Italy, and is always higher in Northern Italy than in the rest of the country. In the comparison between East European and Italian names, discrimination remains almost always significant, but to a lesser extent than in the previous comparison. Finally, the differences in the probability of receiving a positive reply between Arabic and East European names are positive only for the male subsample.

TAB. 2. DIFFERENCES IN THE SHARES OF POSITIVE REPLIES (BOTH WITH AND WITHOUT INFORMATION)

	Whole sample	North	Centre	South
<b>Arab/Muslim name vs Italian name</b>				
All	-.176 (-8.12)	-.254 (-7.35)	-.116 (-2.85)	-.137 (-3.60)
Men	-.221 (-7.24)	-.297 (-6.12)	-.196 (-3.42)	-.154 (-2.85)
Women	-.130 (-4.24)	-.209 (-4.28)	-.037 (-0.64)	-.117 (-2.19)
<b>East European name vs Italian name</b>				
All	-.125 (-5.73)	-.198 (-5.71)	-.073 (-1.77)	-.084 (-2.21)
Men	-.135 (-4.36)	-.211 (-4.27)	-.137 (-2.35)	-.045 (-0.83)
Women	-.114 (-3.73)	-.184 (-3.80)	-.009 (-0.15)	-.121 (-2.29)
<b>Arab/Muslim name vs East European name</b>				
All	-.051 (-2.31)	-.056 (-1.53)	-.043 (-1.05)	-.053 (-1.39)
Men	-.086 (-2.75)	-.086 (-1.70)	-.059 (-1.02)	-.109 (-2.01)
Women	-.016 (-0.50)	-.024 (-0.47)	-.029 (-0.48)	.004 (0.07)

Note: *t* test in parentheses

Since these results stem from random extraction, the differences in the probabilities of positive replies shown in tab. 2 can be given a causal interpretation and already contain many of our main results. However, they do not allow us to take advantage of all the available information — particularly in terms of the characteristics of the accommodation. In order to improve the precision of our measurement and to test for the presence of some interaction effects, we then estimated the probability of receiving a positive reply as a function not only of the name of the sender and of the presence of some personal information, but also of some variables associated with the type of flat and the area. Table 3 shows the average marginal effects, computed for each observation of the sample, from probit estimates where the dependent variable is a dummy equal to one if the e-mail received a positive reply<sup>3</sup>. The standard errors are robust and clustered at city level. Beyond the variables contained in the table, we also inserted in the regressions a set of dummies for the geographic macro-areas (Centre and South) and for each town<sup>4</sup>. The appendix contains the very similar results obtained with OLS. In general (first column), if the mail is sent by a foreign name, without distinguishing between Arabs and East-Europeans, the probability of receiving a positive reply is almost 20% lower than for a mail sent by an Italian name. Discrimination is higher for men (-22.9%) than for women (-14.9%). In a similar regression, but considering only Arab and native names, Bosch et al. (2010) obtain for Spain a coefficient of discrimination similar to our results. The variable “info” is a dummy equal to 1 if some information on the quality of the applicant is

<sup>3</sup> In Stata, after the probit estimate the average marginal effects were obtained with the command `margeff`.

<sup>4</sup> The results do not significantly change if we exclude the city dummies.

provided in the e-mail. The presence of this information reduces discrimination by 7 percentage points and seems particularly relevant if the sender of the mail is male. But these items of information are unimportant if the sender is an Italian name. Since the presence of some details about the job or the family conditions are only partly able to reduce discrimination, the latter cannot be due simply to the presence of informational asymmetries. If the ad is published by a real estate agency, the probability of receiving a positive reply does not differ from that of an ad posted by a private citizen. The dimension of the flat and its price per square meter have a strong influence on the dependent variable. We will return to this point later.

If we distinguish the names also by nationality (last three columns), it is clear that the Arab males suffer from the greatest discrimination, whereas there are no great differences between males and females from East Europe, nor among the two groups of foreign women. In all cases, however, discrimination against foreign names is present. Providing information on job or family is effective only for men with an Arab name.

TABLE 3. PROBIT ESTIMATES OF THE PROBABILITY OF RECEIVING A POSITIVE REPLY, AVERAGE MARGINAL EFFECTS

	All	Men	Women	All	Men	Women
Foreign name	-0.187*** (0.037)	-0.229*** (0.047)	-0.149*** (0.040)			
Foreign name for info	0.070* (0.041)	0.087* (0.052)	0.053 (0.056)			
Arab/Muslim name				-0.210*** (0.045)	-0.274*** (0.054)	-0.142*** (0.053)
East European name				-0.161*** (0.033)	-0.167*** (0.042)	-0.157*** (0.036)
Info	-0.013 (0.028)	-0.039 (0.043)	0.011 (0.052)	-0.013 (0.028)	-0.038 (0.043)	0.011 (0.052)
Arab/Muslim name x info				0.077 (0.050)	0.121* (0.065)	0.028 (0.064)
East European name x info				0.063 (0.041)	0.050 (0.048)	0.078 (0.066)
Company	0.015 (0.017)	0.002 (0.027)	0.022 (0.021)	0.015 (0.017)	0.003 (0.027)	0.023 (0.021)
Rent per square meter	0.025*** (0.004)	0.030*** (0.004)	0.019*** (0.005)	0.025*** (0.004)	0.030*** (0.004)	0.019*** (0.005)
Ln size	0.212*** (0.040)	0.277*** (0.070)	0.155*** (0.037)	0.210*** (0.039)	0.272*** (0.068)	0.154*** (0.037)
Photograph	0.038** (0.017)	0.033 (0.026)	0.046* (0.024)	0.037** (0.017)	0.030 (0.027)	0.046* (0.024)
Observations	2891	1431	1453	2891	1431	1453
Pseudo R-square	0.0642	0.0848	0.0676	0.0651	0.0884	0.0680

Note: the regressions include also dummies for each town and for geographic areas. Robust clustered standard errors in parentheses; \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Summing the coefficient estimated for the interaction between nationality and the presence of information with the coefficient of the ethnic group of the sender, we obtain for Arab names a net discrimination of -0.133<sup>5</sup>, which becomes -0.153\*\*\* for Arab males, and -0.114\* for Arab women. As for the East-European names, the net coefficient becomes -0.098\*\*\*, -0.117\*\* for men and -

<sup>5</sup> -0.210+0.077=-0.133\*\*\*. The stars indicate the p-values of the tests of the hypothesis that the sum of the two coefficients is zero.

0.079 for women. These latter coefficients should measure the extent of discrimination (in terms of lower probability of obtaining a positive reply than Italian names) that remains after netting out the effect of the lack of information. In other words, it is a possible measure of the discrimination due to the difference in preferences. It is strong for Arabic males, followed by East European males, Arabic females, and finally East European women. For a given ethnic origin, the “preference” discrimination affects men more than women and, for a given gender, the names of Arab origin.

The regressions shown in tab. 3 use as dependent variable the dummy for the receipt of a positive reply. An alternative consists in considering a dummy that takes the value 1 only if the person is directly invited to see the flat. In this case the number of replies falls from 1,868 to 1,381, and regressions similar to those of tab. 3 show that in this case too there is a significant discrimination against both foreign ethnic groups, for both genders. The degree of discrimination remains greater for Arab men than for women, but there are no significant differences between men and women from Eastern Europe. The only relevant difference from the results in tab. 3 concerns the role of supplementary information, which seems to be relevant particularly for East European names, whereas it is not very significant for the Arab ones. Further, the coefficient for the dummy “company” becomes weakly significant and positive in the regression on the sample of men.

It may be not completely realistic for a foreign-born person to be able to send an application written in good Italian. To make the test more realistic, we also sent 625 applications with spelling mistakes, each signed by one of the eight fictitious foreign names. This should also allow us to examine whether the presence of some mistakes may be interpreted as a sign of a low stock of human capital and therefore of bad quality of the applicant. We might expect that the presence of such mistakes would thus reduce the probability of receiving a positive reply. However, Tab. 4 does not corroborate this hypothesis. The first three columns, regarding regressions run on the whole sample, confirm that all foreign name are discriminated, but also show that the presence of spelling mistakes does not further reduce the probability of receiving a positive reply, for both ethnic groups considered. The last three columns, from regressions run only on foreign names, show that discrimination affects the Arab/Muslim names more than the East-European, in particular the men, but also that the probability of a positive reply does not diminish in case of applications with spelling mistakes. Actually, the overall share of positive replies obtained by Arab/Muslim names of both genders is 43.6%, a percentage that increases to 44.3 for e-mails without mistakes, and goes down very marginally, to 41.1%, for e-mails with some mistakes. For East European names the difference is even lower: 47.9% for e-mails with mistakes, 49.5% without. It seems therefore that the name is a sufficient indicator of the “quality” of the applicant, and that the landlord does not care about the presence of mistakes. Perhaps many people share the idea that e-mails are written very quickly and many persons do not bother to check the exact spelling of what they have written, but this is only one of many possible explanations. In any case, it could imply that immigrants might not receive a great advantage in terms of positive answers from rental applications from a very good knowledge of the natives’ language. Discrimination seems to be caused by prejudice and ignorance about relevant information, not by the formal appearance of the latter.

TAB.4. PROBIT ESTIMATES OF THE PROBABILITY OF RECEIVING A POSITIVE REPLY INCLUDING THE MAILS WITH SPELLING MISTAKES, AVERAGE MARGINAL EFFECTS

	Whole sample			Only foreign-sounding names		
Arab/Muslim name	-0.209***	-0.275***	-0.136***	-0.066**	-0.143***	0.012
	(0.045)	(0.053)	(0.048)	(0.033)	(0.042)	(0.042)
East European name	-0.144***	-0.144***	-0.144***			

	(0.033)	(0.043)	(0.035)			
Info	-0.011	-0.034	0.013			
	(0.028)	(0.043)	(0.052)			
Arab/Muslim name x info	0.077	0.131**	0.017	0.069**	0.099**	0.033
	(0.049)	(0.067)	(0.057)	(0.033)	(0.043)	(0.045)
East European name x info	0.032	0.002	0.055	0.020	-0.034	0.072*
	(0.040)	(0.052)	(0.072)	(0.026)	(0.031)	(0.037)
Arab/Muslim name x mistake	-0.029	0.007	-0.065	-0.025	0.015	-0.061
	(0.035)	(0.049)	(0.053)	(0.035)	(0.050)	(0.053)
East European name x mistake	0.005	-0.033	0.042	0.011	-0.033	0.052
	(0.036)	(0.051)	(0.043)	(0.037)	(0.052)	(0.046)
Observations	3511	1750	1761	2522	1257	1265
Pseudo R-square	0.0610	0.0860	0.0632	0.0556	0.0772	0.0675

Note: the regressions also include dummies for each town and for geographic areas, and the regressors about the characteristics of the housing units. Robust clustered standard errors in parentheses

The results obtained so far provide evidence in favour of discrimination against foreigners in the rental market. Its intensity varies among genders and types of nationality. From the descriptive statistics shown previously, however, a strong variability across geographic areas also emerges. At the cost of lower precision, we can verify in greater detail how discrimination is present in different parts of Italy by running separate estimates by gender and area. Table 5 contains the marginal effects of these regressions (again, as for tab. 3, on e-mails without spelling mistakes). For men, discrimination seems greater in Northern regions, against both ethnic groups but particularly so for Arab names. The difference in the levels of discrimination across geographic areas is even greater for women. The availability of personal information seems more effective for Arab men in the North, and for East-European women in the Centre-North.

TABLE 5. PROBIT ESTIMATES OF THE PROBABILITY OF RECEIVING A POSITIVE REPLY, BY GENDER AND AREA  
AVERAGE MARGINAL EFFECTS

	Men			Women		
	North	Centre	South	North	Centre	South
Arab/Muslim name	-0.422*** (0.051)	-0.153** (0.066)	-0.183*** (0.065)	-0.269*** (0.062)	-0.009 (0.084)	-0.126* (0.072)
East European name	-0.213*** (0.071)	-0.145*** (0.053)	-0.107* (0.061)	-0.271*** (0.033)	-0.116*** (0.036)	-0.061 (0.068)
Info	-0.065 (0.062)	0.070 (0.045)	-0.106** (0.054)	-0.044 (0.056)	-0.056 (0.070)	0.142* (0.082)
Arab/Muslim name x info	0.279*** (0.091)	-0.059 (0.058)	0.083 (0.091)	0.106 (0.096)	-0.009 (0.121)	-0.021 (0.121)
East European Name x info	-0.019 (0.081)	0.001 (0.062)	0.153 (0.098)	0.173*** (0.063)	0.232*** (0.082)	-0.193* (0.107)
Company	-0.002 (0.045)	0.028 (0.053)	-0.013 (0.026)	-0.016 (0.037)	0.019 (0.016)	0.060 (0.044)

Rent per square meter	0.018*** (0.005)	0.036*** (0.004)	0.034*** (0.007)	0.019*** (0.005)	0.025*** (0.004)	0.003 (0.007)
Ln size	0.212* (0.109)	0.331*** (0.044)	0.276*** (0.106)	0.128** (0.055)	0.053 (0.068)	0.239*** (0.061)
Photograph	-0.088** (0.043)	0.109* (0.065)	0.094** (0.039)	0.055 (0.033)	0.042 (0.052)	0.039 (0.051)
Observations	548	418	465	552	418	481
Pseudo R-square	0.112	0.130	0.0813	0.0893	0.0820	0.0778

Note: the regressions also include dummies for each town and for geographic areas and the regressors about the characteristics of the housing units. Robust standard errors in parentheses

The much stronger presence of discrimination in the North than in the rest of the country does not depend on its concentration in a particular sub-area. Tab. 6, that provides the probit average marginal effects for each region for which we have more than 170 observations, shows that the coefficients of foreign names are almost always significantly negative for each of the main Northern regions, whereas they are not significant in the regions of Central and Southern Italy. Discrimination is significant also in the regions that do not feature any big town, like Veneto or Emilia-Romagna. The appendix also provides the probit marginal effects estimated for each of the six biggest Italian towns, that corroborate this evidence.

TABLE 6. PROBIT ESTIMATES OF THE PROBABILITY OF RECEIVING A POSITIVE REPLY, BY REGION  
AVERAGE MARGINAL EFFECTS

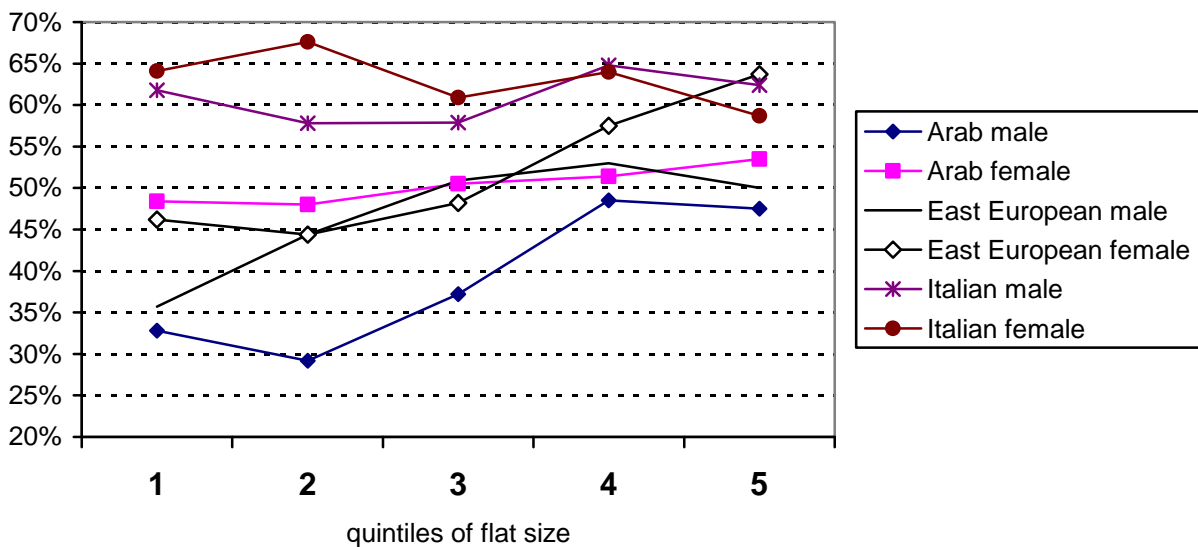
	Lombardia	Veneto	Emilia Romagna	Toscana	Lazio	Campania	Sicilia
Arab/Muslim name	-0.326*** (0.068)	-0.405*** (0.085)	-0.482*** (0.061)	-0.015 (0.105)	-0.067 (0.069)	-0.066 (0.107)	-0.030 (0.102)
East European name	-0.367*** (0.066)	-0.142 (0.119)	-0.157* (0.082)	-0.187** (0.091)	-0.097 (0.067)	-0.034 (0.109)	0.011 (0.099)
Info	-0.008 (0.090)	-0.107 (0.103)	-0.033 (0.093)	0.039 (0.107)	0.002 (0.067)	0.020 (0.110)	0.052 (0.101)
Arab/Muslim name x info	0.076 (0.116)	0.327*** (0.109)	0.263*** (0.093)	-0.230** (0.108)	-0.008 (0.096)	-0.016 (0.153)	0.216* (0.130)
East European name x info	0.141 (0.110)	-0.101 (0.173)	0.088 (0.129)	0.206 (0.164)	0.059 (0.092)	-0.124 (0.157)	0.086 (0.140)
Observations	362	179	313	186	616	247	273
Pseudo R-square	0.112	0.0941	0.126	0.137	0.0539	0.0300	0.0479

Nota: the regressors contain also city dummies and explanatory variables on the characteristics of the housing units.  
\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

We noted above that the probability of a positive reply is positively correlated with the size of the apartment and with its quality (approximated by the rent per square meter). We may wonder whether discrimination itself varies according to the size of the apartment or its unitary price. Ahmed and Hammarstedt (2008) found that discrimination increases with the total rent of the

housing unit. Total rent depends on both the size and the quality and location of the flat, so it could be useful to separate these effects. Fig. 3 shows the percentage of positive replies by gender and ethnic group, and by quintiles of size of the apartment: the positive relationship between the share of positive replies and size of the flat is not present for Italian names, but is typical of foreign groups. Ethnic discrimination seems therefore to be very strong against applications for flats of medium or small dimensions. It is possible that e-mails asking for information about large apartments may be taken as indicators of trustworthiness and ability to pay the rent, or as signs of low residential mobility. The landlords or the agencies may be more suspicious towards e-mails sent by foreigners interested in small flats. Alternatively, if the demand for large or expensive apartments is scarce, the offerers may seek for any opportunity to let them. The 2007 Eu-Silc survey for Italy confirms that there is a negative relationship between the number of rooms and the share of renters who have been at least once in arrears with the payment of the rent during the previous 12 months. Also negative, from the same sample, is the correlation between the monthly rent and the probability of arrears in payment. These relationships could be somehow known to landlords and agencies, who react accordingly.

FIG. 3. SHARE OF POSITIVE REPLIES BY QUINTILES OF SIZE OF THE APARTMENTS, GENDER AND ETHNIC GROUP



To formally test for the effect on discrimination of the size and cost of the flat, we add the dummy for small apartments (equal to 1 if the size of the flat does not exceed 80 square meters, the median size of our sample) and the dummy for cheap apartments (equal to 1 if the rent per square meter is lower than the median), and their interactions with the dummy for foreign names (tab. 6). Regression results confirm that foreign names are more discriminated if they send e-mails for small apartments, particularly for women. Among Italians, however, the size of the housing unit does not influence the probability of a positive answer. The unitary cost of the apartment (that could also reflect its location, not only its quality), unlike its size, does not influence the degree of discrimination (last three columns). Further analysis, not shown, confirms that discrimination does not depend on the total rent, if we also check for the size of the apartment. We checked that discrimination is also insensitive to the rent per square meter also when the dependent variable is the probability of being directly invited to see the apartment.

TABELLA 7. PROBIT ESTIMATES OF THE PROBABILITY OF RECEIVING A POSITIVE REPLY, MARGINAL EFFECTS ON THE SAMPLE MEANS

	All	Women	Men	All	Women	Men
Foreign name	-0.118*** (0.040)	-0.053 (0.054)	-0.185*** (0.044)	-0.127** (0.060)	-0.041 (0.077)	-0.213*** (0.061)
Small apartment	0.066* (0.034)	0.132*** (0.042)	-0.006 (0.041)	0.064* (0.037)	0.135*** (0.044)	-0.015 (0.047)
Foreign name x small apartment	-0.137*** (0.029)	-0.192*** (0.046)	-0.092** (0.044)	-0.134*** (0.033)	-0.197*** (0.052)	-0.081* (0.046)
Cheap apartment				-0.036 (0.053)	0.038 (0.064)	-0.125* (0.066)
Foreign name x cheap apartment				0.015 (0.057)	-0.021 (0.069)	0.048 (0.068)
Info	-0.014 (0.028)	0.008 (0.052)	-0.041 (0.043)	-0.013 (0.028)	0.008 (0.053)	-0.038 (0.043)
Foreign name x info	0.072* (0.041)	0.056 (0.057)	0.091* (0.053)	0.072* (0.041)	0.056 (0.058)	0.088* (0.053)
Company	0.015 (0.017)	0.022 (0.022)	0.003 (0.027)	0.016 (0.017)	0.022 (0.022)	0.005 (0.026)
Rent per square meter	0.025*** (0.004)	0.018*** (0.005)	0.031*** (0.004)	0.023*** (0.005)	0.020*** (0.005)	0.026*** (0.005)
Photograph	0.038** (0.017)	0.049** (0.024)	0.033 (0.026)	0.038** (0.017)	0.049** (0.024)	0.032 (0.026)
Ln size	0.177*** (0.063)	0.162** (0.067)	0.183* (0.110)	0.180*** (0.063)	0.158** (0.065)	0.192* (0.112)
Observations	2891	1453	1431	2891	1453	1431
Pseudo R-square	0.0675	0.0740	0.0874	0.0677	0.0742	0.0901

Note: the regressions also include dummies for each town and for geographic areas and the regressors about the characteristics of the housing units. Robust standard errors in parentheses

## 5. Conclusions

The results of an experiment conducted through the Internet show that in extensive areas of the Italian rental housing market there is a significant degree of discrimination against people coming from Arab and Eastern European countries. The most discriminated are the names of Arab origin and, within the same ethnic group, men. The provision of some personal information on job or family conditions often contributes (though not for all) to reduce the intensity of discrimination, without removing it. We also observed that the probability of receiving a callback is positively



correlated with the size of the apartment and the rent per square meter, indicative of the quality of the housing unit. Ethnic discrimination appears stronger when immigrants apply for vacant rental units of small/medium dimensions, as if in this way they implicitly indicate a lower trustworthiness. In effect, Eu-silc data show that these negative relations exist. The quality of an applicant can be signalled in many different ways. We were thus interested in verifying whether an incorrect written form for rental application may be interpreted as a signal of a low stock of human capital and therefore of bad quality of the applicant. This seems not to be the case: grammatical errors do not further reduce the probability of receiving a positive response, for both the ethnic groups considered. Hence, a very good knowledge of the natives' language does not constitute a great advantage in terms of chance of success for immigrants to receive a positive response.

These discriminatory behaviours cannot however be easily generalized to the Italian area as a whole. Landlords and agencies resident in the Northern regions appear to discriminate against foreign persons much more than in the rest of Italy. Explaining these differences is not easy. A significant proportion of immigrants living in Italy reside in the North. This high concentration, developed over a short time span, may have created particularly strong refusal reactions by Italians living in the Northern regions.

An alternative interpretation may, instead, refer to the different levels of economic development and vitality of Italian regions. The unemployment rate is much lower in the Northern area than in the Centre-South (in the first quarter of 2010, the unemployment rate was 6.4% in the North, 8.4% in Central Italy, 14.3% in the Southern regions). For a landlord resident in the North a selective attitude towards potential tenants can be less risky than for those who seek to let a flat in areas where the demand for rental homes for job reasons is lower.

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## Appendix

TAB. A1. OLS ESTIMATES OF THE PROBABILITY OF A POSITIVE REPLY

	(1)	(2)	(3)	(4)	(5)	(6)
	All	Men	Women	All	Men	Women
Nome straniero	-0.190*** (0.026)	-0.228*** (0.037)	-0.153*** (0.037)			
Nome straniero x info	0.073* (0.038)	0.088* (0.053)	0.057 (0.053)			
Arab/Muslim name				-0.214*** (0.031)	-0.282*** (0.042)	-0.143*** (0.044)
East European name				-0.166*** (0.031)	-0.170*** (0.044)	-0.162*** (0.044)
Info	-0.013 (0.030)	-0.038 (0.043)	0.012 (0.043)	-0.013 (0.030)	-0.037 (0.043)	0.012 (0.043)
Arab/Muslim name x info				0.080* (0.044)	0.124** (0.061)	0.030 (0.062)
East European name x info				0.067 (0.044)	0.048 (0.063)	0.083 (0.062)
Company	0.014 (0.019)	0.004 (0.026)	0.020 (0.026)	0.014 (0.019)	0.004 (0.026)	0.021 (0.027)
Rent per square meter	0.024*** (0.004)	0.030*** (0.005)	0.019*** (0.006)	0.024*** (0.004)	0.030*** (0.005)	0.019*** (0.006)
Ln size	0.215*** (0.036)	0.278*** (0.052)	0.162*** (0.051)	0.213*** (0.036)	0.273*** (0.052)	0.160*** (0.051)
Photograph	0.036* (0.019)	0.032 (0.027)	0.044* (0.026)	0.035* (0.019)	0.029 (0.027)	0.044* (0.026)
Constant	-0.510*** (0.185)	-0.879*** (0.266)	-0.181 (0.261)	-0.498*** (0.185)	-0.854*** (0.266)	-0.177 (0.261)
Observations	2891	1438	1453	2891	1438	1453
R-squared	0.085	0.114	0.089	0.086	0.119	0.089

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1 Robust standard errors in parentheses

TAB. A2. PROBIT ESTIMATE OF THE PROBABILITY OF A POSITIVE REPLY FOR THE SIX BIGGEST ITALIAN TOWNS, AVERAGE MARGINAL EFFECTS

	Milan	Turin	Genoa	Rome	Naples	Palermo
Arab/Muslim name	-0.337*** (0.080)	-0.347*** (0.118)	-0.262** (0.122)	-0.071 (0.071)	-0.043 (0.116)	-0.065 (0.129)
East European name	-0.352*** (0.075)	-0.213* (0.110)	-0.190 (0.135)	-0.099 (0.069)	-0.016 (0.115)	-0.100 (0.126)
info	-0.022 (0.102)	0.129 (0.138)	-0.231* (0.132)	0.003 (0.069)	0.036 (0.114)	-0.094 (0.127)

Arab/Muslim name x info	0.080	-0.165	0.308**	0.014	-0.044	0.383***
	(0.127)	(0.181)	(0.142)	(0.097)	(0.164)	(0.121)
East European name x info	0.158	-0.111	0.126	0.060	-0.130	0.349***
	(0.120)	(0.176)	(0.188)	(0.093)	(0.166)	(0.129)
Observations	298	155	131	589	216	139
Pseudo R-squared	0.0813	0.152	0.0693	0.0488	0.0232	0.0900

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1 Robust standard errors in parentheses

TAB. A3. DESCRIPTIVE STATISTICS

Variable	Obs	Mean	Std. Dev.	Min	Max
Positive reply	3676	0.508	0.500	0	1
Arab/Muslim name	3676	0.359	0.480	0	1
East European name	3676	0.356	0.479	0	1
Info: =1 if presence of additional job or family information in the application	3676	0.498	0.500	0	1
Arab/Muslim name x info	3676	0.179	0.383	0	1
East European name x info	3676	0.181	0.385	0	1
Company	3676	0.500	0.500	0	1
Monthly rent in euro	3511	869.166	368.976	100	3000
Rent per square meter in euro	3511	10.153	3.960	0.769	33.333
Size (square meters) of the flat	3676	89.362	28.605	32	300
Ln size (square meters) of the flat	3676	4.449	0.285	3.466	5.704
Photograph is present in the ad	3676	0.597	0.491	0	1
Spelling mistakes are present	3676	0.170	0.376	0	1

Tab. A4. THE E-MAILS SENT BY EACH NAME

HOUSING UNITS: 3.676									
code	date of the ad	person placing the ad (agency/private persone)	rent	square meters	n° rooms	n° pictures in the ad	tel number in description of the apartment	references required	furniture



APPLICATIONS: 3.676

date of application	candidate												information: 0=none; 1=yes	written form: 0=correct; 1=incorrect
	FRANCESCO COLOMBO	ALESSANDRO CONTI	GIULIA MORETTI	FRANCESCA RUSSO	AHMED HOSSAIN	YOUSSEF KHELIFI	AICHA RAHMAN	KHADIIJA AKTER	ANDREI JOVANOVIĆ	MIHAIL BOGDAN	IRYNA IVANOVA	RODICA NIKOLIC		
NO INFO: 1.531 + 312 ill-formed	137	128	139	136	131 +39	129 +42	122 +38	120 +40	125 +36	121 +40	123 +37	120 +41		
INFO: 1.520 + 313 ill-formed	122	131	129	126	124 +42	122 +37	128 +41	126 +37	125 +40	128 +37	126 +41	133 +37		

RESPONSES		
date of response		
negative response	positive response	no response [1.509]

RESPONSE CATEGORIES

negative response = unit not available	positive response = unit available	other
sharply negative without motivation [23]	implicitly positive and/or request of telephone contacts [225]	auto-reply[61]
negative, and reason why [113]	positive, but other requirements indicated [20]	scam[0]
negative, but possibility of further contacts for other solutions[83]	positive, and more info about the applicant [58]	rising rent indicated in the ad[6]
implicit negative: it is not stated whether the unit is available, but the language seems to indicate it is not [8]	positive, and more info about the housing unit [94]	response not appropriate [2]
	positive, and possibility of a showing [1.381]	
	positive, but disinterested [39]	
	positive, only if particular conditions will realise [51]	