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Discrimination towards Youth in Goods and Services Markets: Evidence from Field Experiments in France

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Abstract: In this study, we carried out seven distinct and independent rounds of correspondence tests to detect discriminatory behavior in domains and markets in France that have not previously been subjected to much investigation in the literature. The study areas included: purchasing a used car; purchasing an auto insurance policy; applying for a car loan; purchasing supplemental health insurance; enrolling in an adult training program; purchasing an existing small business; and renting vacation accommodations. Access to these items and services are associated with either potential pathways to a middle-class job or hallmarks of a middle-class living standard. We seek to discern evidence of discriminatory behavior according to the criteria of age, gender, ethnic origin, and the reputation of the neighborhood of residence (advantaged or disadvantaged). We discern statistically significant patterns in our observed statistical outcome (callback rates) in all seven markets, which we interpret as possibly indicative of discriminatory behavior; however, the criteria, the magnitudes, and the signs differ from one market to another. One finding is that differential treatment based on ethnicity and the reputation of the neighborhood (i.e., neutral or disadvantaged) might not be as systematic and mutually reinforcing as they are frequently perceived to be in the domains of labor and housing markets.

Keywords: discrimination; field experiment; correspondence testing; ethnic origin; gender; neighborhood of residence

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1. Introduction

As young people acquire education and training, develop soft and hard skills, and gain job experience to facilitate their integration into the labour market, some may be confronted with several discriminatory obstacles, some of which are age-related, and others of which are based on demographic or spatial characteristics. Abstracting from their own individual human capital and professional backgrounds, one can imagine workers facing age discrimination in certain situations, even though age is one of the motives that is officially prohibited by law. While most of the studies in the literature involve the alleged penalizing of older workers, one can also imagine situations of discriminatory behaviour that disadvantage youth. In this vein, as they aspire to gain a foothold in the labour market, some risks remain at its periphery. Some youth might also be potentially vulnerable to other discriminatory barriers tied to criteria such as gender, ethnic origin, and locality of residence.

The topic of this study is discriminatory behaviour towards youth, as well as between categories of youths on the part of a selected set of service providers and vendors in France. This is essentially a summary paper that synthesizes the voluminous results generated from a set of more in-depth studies contained in an unpublished report commissioned by the French government [1]. We first investigate the role of age in the context of access to job-training programs. For the remainder of the paper, we turn our attention to an investigation of whether categories of young people might be subjected to discriminatory treatment

according to the criteria of ethnic origin, gender, and the reputation of the neighborhood of residence.

In this paper, we depart from much of the existing literature by searching for empirical evidence of discrimination in seven product or service markets that, to our knowledge, have rarely been investigated. These markets are nonetheless germane for the economic and social integration of young people and, thus, for the promotion of social cohesion, as mentioned in the oft-mentioned and cherished French value of 'l'inclusion sociale'. We have selected these markets because they constitute some of the pathways to employment opportunities and some of the hallmarks of the concomitant middle-class standard of living. They involve accessing or purchasing the following seven items or services: a means of personal, motorized transportation; auto insurance; auto loans; supplemental health insurance; continuing training for adults; entrepreneurial opportunities; and leisure activities. The first three applications involve the markets for used cars, auto-insurance policies, and auto loans, which typically facilitate professional and social mobility. Two other applications are the markets for vocational training and existing small enterprises, which also constitute potential pathways for professional mobility. The two remaining applications are the markets for supplemental health-insurance contracts and for vacation accommodations, both of which are important facets of middle-class living standards.

The first potential criterion of discrimination that we examine is age, which we achieved by comparing the outcomes of a 22 year old individual to a middle-aged person, who is 20 years older, while holding other observable traits as fixed. We then move beyond the question of age in search of discriminatory outcomes within our set of profiles of 22 year old individuals. In order to investigate potential discrimination against women, residents of disadvantaged neighborhoods, and individuals of African ethnicity, we vary those three attributes, independently of each other.

2. Literature Review and Experimental Design

There are at least three conceptual approaches for the economic literature regarding discrimination. The classical, taste-based approach set out in Becker (1957, 1971) amounts to pure, willful discrimination. In the context of the labor market, there are three possible channels through which discriminatory forces are exerted. Either the employer has a distaste for job applicants belonging to a certain group, or the incumbent employees dislike working alongside of them, or, alternatively, the firm's customers harbor such sentiments. Irrespective of the channel, discrimination has the impact of reducing the firm's profitability as the most productive and able workers are not necessarily the ones hired.

An alternative view of labelled statistical discrimination, attributed to Arrow (1973), is not based on preferences but on the motive of risk-aversion. According to this less direct approach, upon receiving imperfect information regarding candidates' productivity, recruiting firms resort to signaling. The group's shared characteristic serves as a signal for desirable or perhaps risky, yet unobservable, attributes based on the employers' perceptions of the innate productivity of job applicants. The subjective probability of an applicant being assigned a high score for expected performance is a direct function of the perceived average score for members of the group.

The field-experimental methodology that we employ involves the technique of correspondence testing, which is a type of randomized control trial. It has been applied extensively in the economics literature regarding labour and housing markets. In the French literature, such field experiments have uncovered evidence of employment and rental housing discrimination based on a variety of criteria, including ethic origin. Examples include [2–4].

More specifically, researchers respond to actual job postings by sending fictitious applications, whose human capital attributes are presented as identical across groups. Every effort is made to eliminate differences in the average observable characteristics across groups, with the obvious exception of the criterion on which the potential discrimination is based. The observable outcome variable is the event of a callback, thus obviating the

possibility that individual job applicants can influence the outcome of the experiment at stages subsequent to the initial point of contact. The relative frequencies for the binary callback variable are compiled for all the profiles and then compared to the value for the reference profile, from which statistically significant differences are interpreted as evidence of discriminatory or preferential selection behavior.

This approach has been applied by researchers in other social science disciplines for decades. An influential survey paper by Riach and Rich [5] encouraged economic researchers to utilize it in their studies regarding discrimination. More recent surveys include the handbook chapter by Bertrand and Duflo [6] and the Journal of Economic Literature article by Neumark [7]. For a recent accessible handbook, see Gaddis [8]. Perhaps the best-known seminal study in economics is Bertrand and Mullainathan [9]. Similarly to much of the subsequent literature, those authors conclude that job discrimination against racial minority groups does exist. The advantages are that biases stemming from selection and unobserved heterogeneity are greatly reduced. One disadvantage is that the results might not have a high degree of external validity beyond the specific and localized samples and thus lack representativeness of the underlying populations. It can also be challenging to obtain representative samples of the potential vendors or recruiters.

As is common in the literature, we design profiles of fictitious applicants in our seven markets of application (used cars, car loans, auto insurance, supplemental health insurance, adult training, purchases of small business, and vacation lodging), but the correspondence does not involve CVs. Instead, we respond to selected posted advertisements or solicitations by sending out expressions of interest and queries via E-mail from each of the six applicants or inquirers, whose profiles we describe in detail below. The correspondences consist of brief statements that are deliberately drafted in colloquial style but are worded differently in efforts to avoid detection. These responses contain identifying information regarding each of the four attributes (race, gender, neighborhood of residence, and age) whose effects we attempt to discern, but only one is varied at a time. The other three characteristics of the requestors are rendered similar by design. Although their labour market situation is not made explicit in our responses, it might be inferred that their current situation is precarious, perhaps alternating between short-term work and spells of unemployment. One trait that all of these six individuals share is their common expressed, broad interest in a career in sales and retailing. The 42 year old worker is launching a new career in mid-life, while the five 22 year old workers lack prior stable work histories.

The estimating strategy is to tabulate the call-back rates of the various profiles that request information and then to compare them with the observed rate for the reference individual. In most cases he is a young, (apparently) white male with a French-sounding name who does not reside in a disadvantaged neighborhood. The design of our experiment also allows us to analyze the effect of gender crossed with African origin. We highlight all statistically significant discrepancies based on t-tests with bootstrapped estimated standard errors. The same set of profiles—our 'cast of characters'—is utilized in all seven applications. They read as follows:

- 22 year old male with a French-sounding name residing in a neutral neighborhood
- 22 year old female with a French-sounding name residing in a neutral neighborhood
- 22 year old male with an African-sounding name residing in a neutral neighborhood
- 22 year old female with an African-sounding name residing in a neutral neighborhood
- 42 year old male with a French-sounding name residing in a neutral neighborhood
- 22 year old male with a French-sounding name residing in a disadvantaged neighborhood

The data were collected during different sub-periods between January 2015 and May 2016. Over the seven experiments, a total of 2527 requests for information were sent out in response to 2527 posted offers, which in turn involved sending a total of 15,162 (2527 $\times$ 6 profiles) of them.

3. Results

3.1. Access to Vocational Training

The six fictional individuals expressed an interest in enrolling in a brief adult training program and sent out requests for information to a set of 154 providers in both the public and private domains. Note that this trial does not involve applying for admission, but it does constitute a requisite first step in ultimately participating in the training program. Gaining the relevant skills and credentials, whether associated with a currently held job or not, is thought to be very in-egalitarian in France; women and unskilled workers tend to be viewed as disadvantaged in this realm.

In May 2014, the population of service providers in France numbered approximately 48,000. From this list, we selected 1637 organizations which appeared to offer programs in the fields of retailing and sales in the Greater Paris area. Our sample is comprised of all 154 firms that had a 'contact us' link on their internet site. Between November 2015 and February 2016, we sent to each of them six similar messages within an interval of several days, all of which indicated an interest in the program featured on the website and solicited further information regarding the practicalities. The sequence of sending the six messages was randomized and varied across the training providers. The providers were selected from all over the Greater Paris area, but all of the would-be clients listed an address that is within the same "département" (i.e., a suburban county). We regarded those cases in which there was no response or when the person was told that he/she cannot enroll (perhaps because the sessions are full) as negative responses. We otherwise considered the response to be non-negative.

A little more than half of the organizations that we subjected to testing emitted at least one non-negative response (17.3%, 25.9%, 18.5%, 14.8%, 9.9%, and 13.6% emitted 1, 2, 3, 4, 5, or 6 non-negative responses, respectively). The 42 year old individual was contacted the most frequently, and he was the candidate who had the highest response rate, of almost 36%. Among the service providers who emitted at least one response, he received one from over two-thirds of them.

The results are presented in Table 1. Our main finding is that there appears to be discrimination in favour of the older worker, implying that the younger individuals have relatively less access to the training programs. While the reference candidate (in this application, the young female of African origin residing in a neutral neighborhood) was estimated to have a 22.7% chance of receiving a non-negative response to her request for information, this proportion is 35.7% for the 42 year old male candidate. The young man of French ethnicity has a rate of 27.9%.

Table 1. Differences in the non-negative response rate emanating from the same vocational training organizations (estimated discrimination parameters) (reference profile: 22 year old woman, African origin).

Profile (Reference Case: 22 Year Old Woman of African Origin)	Relative Frequency of Non-Negative Responses Over 154 Training Organizations	Statistical Discrepancy for Non-Negative Response (% Points)	Probability Value
22 year old woman of African origin	22.7		
22 year old woman, French origin, neutral neighborhood	27.9	5.2	0.114
42 year old man, French origin, neutral neighborhood	35.7	**12.9** ***	**0.001**

Table 1. *Cont.*

Profile (Reference Case: 22 Year Old Woman of African Origin)	Relative Frequency of Non-Negative Responses Over 154 Training Organizations	Statistical Discrepancy for Non-Negative Response (% Points)	Probability Value
22 year old man, French origin, neutral neighborhood	27.9	5.2	0.146
22 year old woman, French origin, disadvantaged neighborhood	25.9	2.7	0.432
22 year old man, African origin, neutral neighborhood	26.0	3.3	0.391

Notes: The *t*-statistics and the confidence intervals were calculated using the bootstrap method with 10,000 draws; *** significant at the 1% level.

Given the heterogeneity of both the service providers and of the programming involved, these estimated rates can be sensitive to compositional effects. The chances of receiving a non-negative response tended to be higher when the duration of the programming was longer than two days, in which case these estimates are statistically comparable across the six fictitious individuals (Table A1). The primary result that we discerned with respect to the older man (apparently preferential treatment) is driven mostly by organizations within the city of Paris, as opposed to the suburbs (regional breakdown not shown), and by programs of very short duration (Table A1).

3.2. Purchasing a Business

In the face of high youth unemployment, workers who feel excluded from the primary labour market might consider the self-employment option. Purchasing an existing business might appear to be a less risky option than creating one's own enterprise from scratch. We now examine the extent to which groups of workers who are alleged to face discrimination in the labour market might also face obstacles in the market for existing businesses.

A similar study was carried out in Sweden in 2008 [10] that highlighted discrimination against candidates of North-African ethnicity. For this particular round of testing, we selected 341 postings of small businesses for sale (with presumably relatively low start-up costs) that were posted on the internet between February and October of 2015. The principal websites that we scrutinized were «Le Bon Coin», «Papcommerce», «Paruvendu», «Placedescommerces», and «Vivastreet». This sample is quite heterogeneous, varying according to the sector of the business (restaurants, bars, beauty and hair salons, grocery, and apparel), their location in the Greater Paris area, their asking sale price (from under 50,000 to more than 100,000 EUR), the apparent urgency of sale, and the motive for the sale. According to the «Centre Régional d'Observation du Commerce de l'Industrie et des Services» (http://www.crocis.cci-paris-idf.fr/ accessed on 1 December 2022), in Greater Paris, more than one business in three has a head who is older than 54. Thus, there are potentially 266,300 enterprises having fewer than 50 workers that might face an ownership challenge in the medium term, the vast majority of which have fewer than five workers. This market is characterised by an imbalance between supply and demand; there is huge variation in size, volume, and the sector that renders exchanges more complex. A total of 2046 messages were sent out (341 $\times$ 6) during the week that any advertisement was posted. The order in which they were sent was randomized and varied from one advert to another. An outcome was coded as negative if either there was no response, or if the response indicated that the proposed transaction cannot occur. In all other cases, the response was treated as non-negative.

As expected, the proportions of receiving a non-negative response varied across the inquirers; the relative frequencies are listed in the first column of Table 2. The young man of French origin residing in the disadvantaged neighborhood has the highest value of 21.7%, while his counterpart of African ethnicity living in the neutral neighborhood has the lowest value of 4.7%. The estimated discrepancies in the non-negative response rates between the requesters are listed in the second column of Table 2. Perhaps surprisingly, this set of results suggests a positive discrimination (on the order of 11 percentage points) in favour of the young man of French origin residing in the disadvantaged neighborhood. On the other hand, the young man of African origin, despite living in a neutral neighborhood, has a response rate that is almost six percentage points below that of his French-origin counterpart residing in a neutral neighborhood.

Table 2. Differences in the non-negative response rate emanating from the same business for sale offers (estimated discrimination parameters) (reference profile: 22 year old man, French origin).

Profile (Reference Case: 22 Year Old Man of French Origin)	Relative Frequency of Non-Negative Responses	Statistical Discrepancy for Non-Negative Response (% Points)	Probability Value
22 year old woman, French origin, neutral neighborhood	12.0	1.473	0.381
22 year old woman, African origin, neutral neighborhood	11.1	0.592	0.765
42 year old man, French origin, neutral neighborhood	9.7	−0.880	0.605
22 year old man, French origin, neutral neighborhood	10.6	Reference	
22 year old man, French origin, disadvantaged neighborhood	21.7	**11.137** ***	0.0
22 year old man, African origin, neutral neighborhood	4.7	**−5.860** ***	0.0

Notes: The *t*-statistics and the confidence intervals were calculated using the bootstrap method with 10,000 draws; *** significant at the 1% level.

We now turn to the question of whether these two findings reflect primarily compositional effects by estimating discrete choice (probit) models of the probabilities of each of the six inquirers receiving a non-negative response as a function of attributes of the business that is for sale. This set of results is presented in Table A2. Given the plethora of estimates, we mention here only the finding that was unexpected, namely the apparent favouritism towards the young man of French origin residing in a disadvantaged neighborhood. Closer examination suggests that it is linked to the sector of the enterprise for sale. When all other factors were held constant, his chances were higher when it was not a restaurant or a grocery store. The more in-depth analysis suggests that one contributing factor might be that the businesses that respond non-negatively to this profile of requestor tend to be of relatively "low value", as indicated by the asking price and the payments for renting the premises. The advertisements corresponding to those businesses share some common features, such as the vendor being a woman, the vendor contemplating retirement, and having a regular clientele.

3.3. Purchasing a Used Car

We investigate the possible repercussions of discrimination for professional and personal mobility by applying our empirical approach to three markets that complement each other, pertaining to the worker's access to a personal automobile. Our experiment involving the used car market is in the spirit of the seminal study by Ayres and Siegelman [11]; however, our study differs in terms of technique and the exact market in question. Those authors conducted an audit study involving actual potential buyers who visited dealers in person and in pairs, whereas ours involves fictitious would-be buyers requesting information.

We sent out the six messages in a quasi-simultaneous fashion (i.e., within a few hours) to 489 advertisements for used cars in the Greater Paris Area between January and May 2015. The types of cars for sale differed in terms of size, brand, number of cylinders, number of doors, and price range. While these vendors were spread out all over the Greater Paris area, the six fictitious buyers always indicated an address within the same county as the vendor.

The relative frequencies for the six profiles are listed in the first column of Table 3. They range from 10.6% for the candidate of reference (the young male of French origin residing in a neutral neighborhood) to 7.8% for his counterpart in the disadvantaged neighborhood. The response rates are 8.4% and 8.6% for the young woman of French origin and the young man of African origin (both residing in neutral neighborhoods), respectively. The gaps corresponding to those three disfavoured would-be buyers, which are listed in the second column of Table 3, are statistically significant despite their low magnitude.

Table 3. Differences in the non-negative response rate emanating from the same used car for sale advertisements (estimated discrimination parameters) (reference profile: 22 year old man, French origin).

Profile (Reference Case: 22 Year Old Man of French Origin)	Relative Frequency of Non-Negative Responses	Statistical Discrepancy for Non-Negative Response (% Points)	Probability Value
22 year old woman, French origin, neutral neighborhood	8.4	**−2.24 ***	0.089
22 year old woman, African origin, neutral neighborhood	9.6	−1.06	0.446
42 year old man, French origin, neutral neighborhood	8.6	−2.03	0.123
22 year old man, French origin, neutral neighborhood	10.6	Reference	
22 year old man, French origin, disadvantaged neighborhood	7.8	**−2.85 ****	0.044
22 year old man, African origin, neutral neighborhood	8.6	**−2.04 ***	0.097

Notes: The *t*-statistics and the confidence intervals were calculated using the bootstrap method with 10,000 draws; ** significant at the 5% level, * significant at the 10% level.

In order to investigate these phenomena in greater depth, we now incorporate characteristics of the advertisement itself and attributes of the vendor into our analysis. We estimate probit models of the probability that each of the six potential buyers will obtain a non-negative response from any posted offer, independent of the other five inquirers.

The exogenous variables are all categorical. They are: used car lot versus individual vendor; compact or small sedan versus big sedan and other; price in EUR (<1000, 1000–2000, 2000–5000, 5000–10,000 > 10,000); gender of vendor, and sound of name of vendor (French-sounding, non-French sounding, indeterminate). These results are presented in Table A3. Given the amount of empirical detail, we mention only some of these results here. It seems that the type of vehicle and the attributes of the vendor are more important factors than price in affecting the probability of a non-negative response. The young woman of French ethnicity receives a higher response rate when the vendor is a woman and when it is a relatively small vehicle, ceteris paribus. Her counterpart of African origin encounters lower response rates when she contacts used car lots regarding larger cars, but fares better in the case of inexpensive vehicles. Although appearing to be disfavored overall, the young man of French ethnicity residing in a disadvantaged neighborhood has higher chances when inquiring about a larger, more expensive vehicle, relative to other types of vehicles. Vendors with non-French names tend to respond relatively less frequently to his queries.

In order to examine the compositional effects, the non-negative response rates were estimated for the sub-samples, broken down according to the type of vehicle and the type of vendor (used-car lot versus individual). Globally, the individual vendors tend to favor the young man of French origin who resides in a neutral neighborhood, while the opposite is true for his female and male counterparts of African origin. However, that pattern varies according to the size of vehicle. In summary, discriminatory behaviour with respect to neighborhood or the ethnic origin is associated with advertisements for small or medium-sized vehicles, while such behaviour with regards to gender is concentrated among adverts for larger vehicles (these results are not shown).

3.4. Obtaining Financing for the Newly Purchased Used Car

In order to finance this purchase, the purchaser solicited a car loan from consumer finance companies. It is well known that, given the informational asymmetries regarding the reliability of the borrower, one might expect statistical discrimination as the lenders rely on signals, as discussed in the seminal work by Stiglitz and Weiss [12]. More specifically, the lenders utilize schemes involving credit scoring to assess the risk of the borrower defaulting, which are based on numerous parameters. These scores and the underlying procedures generating them are supposed to respect the non-discrimination principle, as laid out in the French constitution.

For this particular experiment, from 1 January 2012, the Bank of France listed 589 establishments that were authorized to extend consumer credit. In June 2016, we conducted a test of 20 financial establishments whose websites had a link with inputting functions (with several fields) allowing us to submit requests for quotes on the part of each of the six would-be clients. Thus, there was a total of 120 mailings (20×6). We treat a response as negative whenever the potential lender either did not respond at all or indicated explicitly that it could not grant a loan to the individual. In all other cases, the response is treated as non-negative, which we interpret as an agreement to lend in principle.

Just under two-thirds of the establishments (13/20) did send a non-negative response to at least one of the six fictitious candidates. Each of those 13 lenders sent a response to the 42 year old man of French origin, of which five of them responded solely to that individual. The relative frequencies of the non-negative responses received by each of the applicants are displayed in the first column of Table 4. They range from a low of 30%, in the case of the young woman of African ethnicity, to a high of 65% in the case of the 42 year old man of French ethnicity, both of whom reside in a neutral neighborhood. The estimated discrimination parameters, for which the reference case is the young woman of French ethnicity, are listed in the second column of Table 4. She received a non-negative response 40% of the time. The only case for which this discrepancy is precisely estimated is for the 42 year old man, for whom the estimate is a marked, positive 25.1 percentage points. Likely due to the small sample size, there are no statistically significant discrepancies associated with gender, ethnicity, or the type of neighborhood, although the estimates for both the

young man and young woman of African ethnicity are 10 percentage points lower (with prob. values of about 0.14).

Table 4. Differences in the non-negative response rate relating to loan applications (reference profile: 22 year old woman, French origin).

Profile (Reference Case: 22 Year Old Woman of French Origin)	Relative Frequency of Non-Negative Responses	Statistical Discrepancy for Non-Negative Response (% Points)	Probability Value
22 year old woman, French origin, neutral neighborhood	40.0	Reference	
22 year old woman, African origin, neutral neighborhood	30.0	−10.0	0.138
42 year old man, French origin, neutral neighborhood	65.0	**25.1** ***	0.009
22 year old man, French origin, neutral neighborhood	35.0	−5.0	0.305
22 year old man, French origin, disadvantaged neighborhood	35.0	−5.1	0.304
22 year old man, African origin, neutral neighborhood	30.0	−10.1	0.138

Notes: The *t*-statistics and the confidence intervals were calculated using the bootstrap method with 10,000 draws; *** significant at the 1% level.

It appears as though age-based statistical discrimination that does not favour young people is present in this market. However, we also examine the terms of credit that were offered in cases of non-negative response. It turns out that the 42 year old man is quoted slightly higher interest rates (result not presented).

3.5. Obtaining Insurance for the Newly Acquired, Used Car

The Bank of France maintains a list of 252 enterprises that provide "mixed insurance" (covering health-related and disability-related losses) and "non-life insurance" (covering auto-related and property losses) contracts. In March 2016, we tested 38 underwriters on this list from which we could apply for coverage and receive a quote online through their internet websites. The six fictitious individuals filled out a set of fields with information, allowing the firm to assess the risk and set the terms of a would-be insurance contract. Either the absence of a response or an explicitly negative response is treated as negative, while other cases are treated as non-negative and labelled as 'agreements in principle.'

Given that 38 insurance companies were subjected to the testing, a total of 228 applications were sent out (38 × 6). Overall, the response rate was quite high, as 35 firms responded non-negatively to at least one of the six candidates, with an agreement in principle, and 26 of them responded to all six individuals. The relative frequencies, which are listed in the first column of Table 5, do not vary very much. The young man of African origin (who is the reference case in this instance) received the majority of these agreements (33), while the young man of French origin residing in the disadvantaged neighborhood received the least (30). The gaps in the response rates are listed in the second column of Table 5, and the only statistical difference that was discerned was between the young man of French origin living in the disadvantaged neighborhood and each of the other five individuals. Although only three of the firms account for that gap in the number of

responses (33–30), that estimate is significant, at the 7% level. We thus do not uncover much evidence of differential treatment as far as the availability of car insurance is concerned.

Table 5. Differences in the non-negative response rates and premium quotes relating to applications for auto insurance.

Profile Reference Case: 42 Year Old Man, French Origin, Neutral Neighborhood	Relative Frequency of Response	Discrepancy in Non-Negative Response	*p*-Value	Discrepancy in Quoted Price (EUR)	*p*-Value
22 year old woman, French origin, neutral neighborhood	84.2	−2.63	0.31	14.36	0.56
22 year old woman, African origin, neutral neighborhood	81.6	−5.20	0.15	32.36	0.18
42 year old man, French origin, neutral neighborhood	81.6	−5.37	0.41	Reference	
22 year old man, French origin, neutral neighborhood	81.6	−5.28	0.15	**34.63 ***	**0.10**
22 year old man, French origin, disadvantaged neighborhood	78.9	**−7.89 ***	**0.07**	**95.22 ****	**0.00**
22 year old man, African origin, neutral neighborhood	86.8	Reference case		**43.77 ****	**0.03**

Notes: The reference case for the first set of estimates (on the left) is the 22 year old man of African origin, while it is the 42 year old man of French origin for the second set (on the right). *The t-statistics and the confidence intervals were calculated using the bootstrap method with 10,000 draws: ** significant at the 5% level, * significant at the 10% level.*

We now examine whether or not there are discrepancies across the six individuals in terms of the offered insurance contracts. The annual premiums that are quoted range between 586 and 681 EUR (not shown), and for this pricing outcome, there are statistically significant differentials that are listed in the fourth column of Table 5. In order to highlight the patterns of discrimination, the reference case for this particular set of estimates is the 42 year old man of French origin, who benefits from the lowest premiums (despite the fact that he has not been licensed to operate a vehicle for a longer period of time). While the higher estimated premiums for the two 22 year old women are not statistically significant, the discrepancies for the three young men are significantly greater than zero. It is the 22 year old man of French origin residing in the disadvantaged neighborhood who receives the highest quote by far. Overall, our findings suggest that discriminatory practices do occur in the market for auto insurance, as coverage is more costly for those residing in disadvantaged neighborhoods and for younger men, despite the fact that discrimination by gender is supposed to be prohibited. On the other hand, we do not uncover any statistically significant discrepancies by ethnicity in this market.

3.6. Obtaining a Supplemental Health Insurance Policy

In this application, we test for differential access to supplemental health insurance based on the same six prototypical profiles. As is the case for car insurance, discrimination based on sex is illegal for health insurance. Although differentiated treatment by age is legal in this case, due to the higher underlying health-related risks, its magnitude is of interest.

Between April and May 2016, we conducted testing involving 52 establishments whose websites had a functionality permitting us to apply for coverage through the internet. The six fictitious individuals filled out several fields with the information that is required to process the terms of a contract, including the calculation of a quote. Following the procedure that is employed in the other experiments, either the absence of a response or an explicitly negative response is treated as negative, while other cases are treated as non-negative and labelled as 'agreements in principle'.

Fifty-two establishments were subjected to testing, and thus a total of 312 requests were sent. The relative frequencies of the non-response rates are presented in the first column of Table 6. Note that they exceed 85% for all applicants, and that the variance between them appears to be quite low. The discrepancies between these non-negative response rates and the corresponding probability values are listed in the second and third columns of Table 6. As can be seen when viewing the relative frequencies, there is only one discrepancy that is statistically significant. The young woman of African origin appears to have a lower degree of access than any of the other five applicants.

Table 6. Differences in the non-negative response rate relating to supplemental health insurance applications (reference profile: 22 year old man, French origin).

Profile (Reference Case: 22 Year Old Man of French Origin)	Relative Frequency of Non-Negative Responses	Statistical Discrepancy for Non-Negative Response (% Points)	Probability Value
22 year old woman, French origin, neutral neighborhood	88.5	−3.8	0.421
22 year old woman, African origin, neutral neighborhood	86.5	**−5.7** **	0.072
42 year old man, French origin, neutral neighborhood	94.2	1.9	0.658
22 year old man, French origin, neutral neighborhood	92.3	Reference	
22 year old man, French origin, disadvantaged neighborhood	92.3	0.0	0.994
22 year old man, African origin, neutral neighborhood	92.3	0.0	0.998

Notes: The *t*-statistics and the confidence intervals were calculated using the bootstrap method with 10,000 draws; ** significant at the 5% level.

Based on the preceding analysis involving the issuance of agreements in principle, it appears as though one must analyse other outcomes in search of differentiated treatment. The mean levels of the quoted premiums for two levels of coverage—lower and higher—are presented for all six individuals in Table 7. The differences are remarkable, with annual premiums ranging between 291 and 467 EUR for the lower level of coverage and between 676 and 1.064 EUR for the higher level. In the second column of Table 7, we list the

estimated discrepancies in these values (adjusted for statistical variation) between the applicants. As one would expect from the raw figures mentioned above, we discern a strong discriminatory pattern for the level of premiums which is linked to age. Irrespective of the level of coverage, the 42 year old faces premiums that are approximately 50% higher than those offered to the five younger applicants.

Table 7. Differences in the premiums quoted for complementary health insurance applications (reference profile: 42 year old man, French origin).

Profile of Applicant	Average Quoted Annual Premium (EUR)	Discrepancy (EUR)	*p*-Value
Lower coverage Reference case: 42 year old man of French origin	466.9		
22 year old woman, French origin	294.5	**−172.4** ***	**0.0**
22 year old woman, African origin	291.1	**−175.8** ***	**0.0**
22 year old man, French origin	295.6	**−171.2** ***	**0.0**
22 year old man, French origin, resident of disadvantaged neighborhood	291.2	**−175.7** ***	**0.0**
22 year old man, African origin	291.4	**−175.5** ***	**0.0**
Higher coverage Reference case: 42 year old man of French origin	1063.8		
22 year old woman, French origin	681.3	**−382.2** ***	0.0
22 year old woman, African origin	675.7	**−387.8** ***	0.0
22 year old man, French origin	685.1	**−378.5** ***	0.0
22 year old man, French origin, resident of disadvantaged neighborhood	676.5	**−387.3** ***	0.0
22 year old man, African origin	675.7	**−388.5** ***	0.0

Notes: The *t*-statistics and the confidence intervals were calculated using the bootstrap method with 10,000 draws; *** significant at the 1% level.

The differences in quoted premiums between the five 22 year old individuals are of a very low magnitude, at less than 10 EUR per year, and the variation within them is quite low. We do not, however, rule out the possibility that the algorithm takes into account the very small differences in age in determining premiums. According to the birth dates that were inputted, the young man of French origin (living in a neutral neighborhood) is several months older than the other four 22 year old applicants; he is required to pay slightly higher premiums.

3.7. Obtaining Reservations for Vacation Accommodations

Between April and June 2015, the six fictitious individuals solicited information regarding lodgings from a set of 1433 establishments that had posted advertisements. All messages requested a reservation for a one week stay during the high summer season. Our sample consists of lodgings establishments in three regions that are among the most popular tourist destinations in France (Provence-Alpes-Côte d'Azur, Pays-de-la-Loire and Bretagne). The accommodations themselves are either campgrounds, bed and breakfasts, or hotels. The establishments were selected and cross-referenced from three tourist guides: Petit Futé, Guide Michelin, and the Guide du Routard. Over an interval of several days, each establishment received messages from these six individuals requesting a reservation for the same period. The order in which they were emitted was randomized across the

establishments. The queries all contained indications that the sender resided in the city of Paris.

We treat a response as negative if either the establishment does not respond to the request, or if the request is turned down, i.e., it is closed or full over that period. All other cases are treated as non-negative responses. We sent out a total of 8598 requests to 1433 establishments, of which 1342 sent a response of any kind to at least one of the six fictitious applicants. In 1254 cases, we received a non-negative response to at least one of them.

More than 85% of the establishments sent a positive response to at least one of the six requestors; among this group, only one in four responded in non-negative fashion to all six of them. The relative frequencies for each fictitious requestor, which are listed in the first column of Table 8, vary between 46.3% for the young man of French origin residing in the disadvantaged neighborhood and 63% for the 42 year old man. For those instances in which an establishment chooses to address a non-negative response to only one individual, it chooses the 42 year old individual in 34% of such cases, while the youth residing in the disadvantaged neighborhood evokes such a response in only 6% of such cases.

Table 8. Differences in the non-negative response rate relating to requests for travel accommodations (reference profile: 22 year old man, French origin).

Profile (Reference Case: 22 Year Old Man of French Origin)	Relative Frequency of Non-Negative Responses (%)	Statistical Discrepancy for Non-Negative Response (% Points)	Probability Value
22 year old woman, French origin, neutral neighborhood	54.2	**−2.58** *	0.09
22 year old woman, African origin, neutral neighborhood	47.8	**−9.02** ***	0.00
42 year old man, French origin, neutral neighborhood	63.0	**6.02** ***	0.00
22 year old man, French origin, neutral neighborhood	56.8	Reference	
22 year old man, French origin, disadvantaged neighborhood	46.3	**−10.47** ***	0.00
22 year old man, African origin, neutral neighborhood	49.3	**−7.54** ***	0.00

Notes: The *t*-statistics and the confidence intervals were calculated using the bootstrap method with 10,000 draws; *** significant at the 1% level, * significant at the 10% level.

The comparisons between the non-negative response rates appear in the second column of Table 8. All of these discrepancies are statistically significantly different from the reference case of the young man of French origin residing in a neutral neighborhood, indicating elements of discriminatory behaviour according to age, ethnic origin, the reputation of the neighborhood, as well as gender. We discern a general pattern that does not appear to favour the young individuals, as they all exhibit negative discrepancies relative to the 42 year old man. Among the five younger individuals, it is the man of French origin residing in the disadvantaged neighborhood that has the lowest chances of receiving a non-negative response, while the man and the woman of African origin fare only slightly better, on average.

This analysis is also conducted on various sub-samples. We obtain separate estimates for the three classes of accommodation: hotels, bed and breakfasts, and campgrounds (results presented in Table A4). The non-negative response rates tend to be a bit lower for the bed and breakfast establishments. The discriminatory patterns differ across the three classes. We do not find evidence of age-based discrimination amongst the hotels; the favouritism towards the older man is discerned amongst the bed and breakfast places. Amongst the younger individuals, we discern discrimination against the man of French origin residing in the disadvantaged neighborhood across all three classes of lodging, but the effect is weaker in the case of campgrounds. Hotels do not appear to discriminate against individuals of African origin, but that is not the case for the campgrounds and the bed and breakfasts.

The next robustness analysis is based on a division of the sample into the three geographical regions (results not shown). The pattern of positive discrimination in favour of the 42 year old man is found only in the region of Pays-de-la-Loire. Among the five younger requesters, it is only in the regions of Provence-Alpes-Côte d'Azur and the Pays-de-la-Loire where the individuals of African origin are disfavoured. Discrimination associated with the disadvantaged neighborhood was discerned in all three regions, but more markedly in Provence-Alpes-Côte d'Azur and less so in Bretagne.

Finally, we examine the role of the price category of the lodging that is being tested (results not shown). In the application contained in Neumark [13], the price ranges provide an indication of the "standing" of the hotel. As far as the campgrounds are concerned, those in the least expensive quartile do not appear to practice any discrimination according to the attributes upon which we base our tests, while we discern the opposite pattern within the most expensive quartile. Hotels appear to discriminate against the young man of French origin from the disadvantaged neighborhood, irrespective of the level of fees, and the more expensive ones seem to disfavour both individuals of African origin. Irrespective of price, the bed and breakfasts also discriminate against those two profiles, but only those bed and breakfasts charging lower fees discriminate according to the reputation of the neighborhood. The patterns of potential discrimination that we have estimated are summarized in Table A5. Each of the six columns corresponds to one of our fictitious individuals. All seven markets which we tested for discriminatory behaviour are listed in the rows. If the individual appears to receive favourable (unfavourable) treatment relative to the reference case (usually the 22 year old man of French origin residing in a neutral neighborhood), the label 'positive' ('negative') is entered in the corresponding cell.

Checking horizontally across the columns, we uncovered evidence of some form of discrimination in all seven markets, although the criteria, the magnitudes, and the signs differ from one market to another. When applying for a car loan, there was evidence only of age discrimination; the 42 year old man was advantaged. When inquiring about vacation accommodations, there was evidence of all motives of discrimination, i.e., by age, sex, reputation of neighborhood, and ethnic origin. This finding suggests that studies in the discrimination literature that deal only with a single market, such as the labour market (which is by far the most frequent application in France), do not cover the scope and extent of discriminatory phenomena that can work against the more vulnerable socio-demographic groups.

Checking vertically down the rows, relative to the reference case, each of the other five fictitious individuals—corresponding to four distinct criteria for discriminatory behaviour—experiences at least one case of unfavourable treatment, but four of them also experience at least one case of favourable treatment. These patterns highlight the singularity of each motive of discrimination, the repercussions of which are not uniformly manifested across the different markets. The effects of age, gender, reputation of neighborhood of residence, and ethnic origin differ according to these various applications. It was somewhat unexpected that the impacts for individuals with African-sounding names did not dovetail with those for the man residing in a disadvantaged neighborhood. This young man with a French-sounding name pays relatively high car insurance premiums, but he appears to be

favoured when attempting to acquire his own business. In contrast, the young, presumably black, man residing in a neutral neighborhood encounters the opposite pattern of responses.

4. Discussion

The results indicate that none of these seven markets of application receive a clean bill of health as far as signs of potential discriminatory behaviour—or at least of differential treatment—are concerned. Young people can potentially be confronted by a multiplicity of barriers to their social and economic integration due to their age, but also due to their gender, their ethnic origin, and the reputation of their neighborhood. In most cases, however, the estimated magnitudes of the impacts are not large.

The patterns of discrimination according to the attribute of the would-be buyer or subscriber were not uniform across the seven markets. From the lens of discriminatory treatment, each of the markets seems to exhibit intrinsic features. For example, an individual residing in a disadvantaged neighborhood might appear to be disfavored in buying a used car, but not in purchasing supplemental health insurance. According to our findings, which are admittedly based only on these seven markets, discrimination based on ethnicity and/or the reputation of neighborhood might not be as systematic and mutually reinforcing as they are frequently perceived to be in the domains of labour and housing markets. This is inconsistent with the commonly held view that seems to underlie the public policy debates regarding discrimination; namely, that these two criteria of discrimination overlap and reinforce each other and are often conflated in the public psyche.

In addition to these general results, we mention some findings that are specific to either a certain motive for discrimination or to characteristics of the vendors operating in a certain market. For example, in the market for used cars, the behaviour appears to depend on the type of vendor as well as the type of vehicle. In the market for vacation accommodations, treatment is differentiated across the three grades of lodging.

To what extent can these apparent patterns of differentiated treatment that we have uncovered be interpreted as discriminatory? In the applications for the pricing of auto insurance and supplemental health insurance, they are programmed into algorithms that contain a standardized and systematic premium structure. The discriminatory patterns are statistical and fairly transparent in nature. In contrast, there is ample room for psychological discretion to be applied by vendors of accommodations, used cars, small businesses, and slots in training programs. There is greater latitude for taste-based discrimination to be exercised in those contexts.

5. Conclusions

We note that the scope of our research is limited, for the most part, to variations in access to services. In the cases of health and automobile insurance, we did examine differentials in premiums that were quoted, but our analysis focuses mostly on the patterns of differentiated access to services rather than on the phenomenon of price discrimination. The potentially joint effects between these two outcomes are a topic for future research. Our results call for focussed and in-depth analyses that takes into account the particularities of the transactions that take place in each particular sub-market and its precise scope.

We also note that, despite the richness and the variety of the results that we report in this study, there are limits to their external validity. As is the case for all analyses based on the testing methodology, they pertain only to a given market in a defined geographical area at the time when the data were collected. Replications of some of these tests with enlarged and broadened samples may be warranted.

While we do aim to discern statistical discrepancies in the response rates across different groups, we remain cautious in attributing the significant results to nefarious discriminatory behavior. In the instances of the insurance markets, for example, our findings are consistent with (perhaps) justifiable statistical discrimination. In other instances, such as the applications of vacation accommodations and sale of existing businesses, our findings might be indicative of taste-based discrimination.

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Appendix A

Table A1. Differences in the non-negative response rate emanating from the same vocational training organizations (estimated discrimination parameters) cross-tabulated by duration of training.

	Relative Frequencies of Non-Negative Responses	**Discrepancy from Reference Case (in % Points)**	**Prob. Value**
2 days or less (N = 55)			
Reference case: 22 year old woman, African origin, neutral neighborhood	18.3		
22 year old woman, French origin, neutral neighborhood	**29.1**	**11.0 ****	**0.025**
42 year old man, French origin, neutral neighborhood	**43.6**	**25.6 *****	**0.000**
22 year old man, French origin, neutral neighborhood	**27.3**	**9.1 ****	**0.050**
22 year old man, French origin, disadvantaged neighborhood	25.6	7.2	0.250
22 year old man, African origin, neutral neighborhood	27.4	9.2	0.121
Longer than 2 days (N = 39)			
Reference case: 22 year old woman, African origin, neutral neighborhood	39.4		
22 year old woman, French origin, neutral neighborhood	36.9	−2.7	0.733
42 year old man, French origin, neutral neighborhood	39.5	0.0	0.996
22 year old man, French origin, neutral neighborhood	42.0	2.7	0.759
22 year old man, French origin, disadvantaged neighborhood	34.3	−5.2	0.422
22 year old man, African origin, neutral neighborhood	36.7	−2.7	0.774

Table A1. *Cont.*

	Relative Frequencies of Non-Negative Responses	Discrepancy from Reference Case (in % Points)	Prob. Value
Unspecified duration of training (N = 61)			
Reference case: 22 year old woman, African origin, neutral neighborhood	16.4		
22 year old woman, French origin, neutral neighborhood	21.4	4.9	0.316
42 year old man, French origin, neutral neighborhood	**26.1**	**9.8** *	**0.075**
22 year old man, French origin, neutral neighborhood	19.7	3.2	0.564
22 year old man, French origin, disadvantaged neighborhood	19.7	3.4	0.514
22 year old man, African origin, neutral neighborhood	18.0	1.6	0.764

Notes: The *t*-statistics and the confidence intervals were calculated using the bootstrap method with 10,000 draws; *** significant at the 1% level, ** significant at the 5% level, * significant at the 10% level.

Table A2. Probit model of the probability of receiving a non-negative response for each of the six fictional inquirers (coefficient estimates).

	(1)	(2)	(3)	(4)	(5)	(6)
Type of enterprise (ref:*all others)*						
Hair and beauty salons; apparel stores; decorating stores	0.193	0.257	−0.041	0.232	**0.452** **	0.504
Gender of the vendor (ref: female)						
Male	0.052	**−0.871** ***	**−0.857** ***	−0.028	−0.265	−0.263
Unknown	−0.071	0.435	**−1.855** ***	**−1.717** ***	−0.726	**−1.494** ***
Sound of name of vendor (ref: *French-sounding)*						
Unknown	**−1.282** *	**−2.205** ***	0.007	0.31	−0.805	**0.927** *
Non-French	0.083	−0.018	−0.242	0.011	−0.102	0.483
Location of vendor (ref: *all others)*						
Departments number 93 or 95 (less prosperous northern counties of Paris)	**−0.523** *	−0.485	**−0.697** **	**−0.650** *	−0.140	**−0.839** **
Characteristics of the advertisement						
Offer presented as urgent	0.405	**0.619** *	0.447	**0.974** ***	0.181	**0.663** *
Cause of closure retirement	0.336	−0.281	0.226	0.164	0.115	0.357
Cause of closure unknown	0.383	−0.32	0.343	**0.620** **	0.129	**0.779** **
Location or market presented as high quality or upscale	0.239	−0.22	**0.576** **	**0.524** ***	−0.196	0.275
Substantial portion of clientele is regular	−0.181	0.101	−0.403	**−0.560** *	−0.091	−0.152
Advertisement posted on 'le Bon coin'	**−0.979** ***	**−0.794** ***	**−1.153** ***	**−1.196** ***	−0.051	**−1.137** ***

Notes: Probit model specification, coefficient estimates reported; the *t*-statistics and the confidence intervals were calculated using the bootstrap method with 10,000 draws; *** significant at the 1% level, ** significant at the 5% level, * significant at the 10% level. Labels for columns: *(1) 22 year old woman, French origin (2) 22 year old woman, African origin, (3) 42 year old man, French origin (4) 22 year old man, French origin, neutral neighborhood (5) 22 year old man, French origin, disadvantaged neighborhood (6) 22 year old woman, African origin.*

Table A3. Probit Model of the Probability of Receiving a non-negative response for each of the six fictional inquirers (coefficient estimates).

	(1)	(2)	(3)	(4)	(5)	(6)
Type of vehicle (*ref: car lot × large sedan and other*)						
Car lot × compact or smaller sedan	**0.49** *	**1.24** ***	0.15	0.14	0.21	−0.36
Individual vendor × large sedan and other	0.10	**1.08** ***	0.14	0.05	**0.64** **	−0.72
Individual vendor × compact or smaller sedan	**0.56** *	**1.21** ***	0.43	0.48 *	0.49	0.41
Price of vehicle *(ref < 1000 EUR)*						
1000–2000 EUR	−0.47	−0.30	−0.06	−0.52	0.25	−1.06
2000–5000 EUR	−0.21	**−0.69** **	−0.21	−0.10	0.21	−1.23
5000–10,000 EUR	0.24	0.22	0.15	0.32	**0.91** ***	0.34
>10,000 EUR	0.35	0.24	0.10	0.28	0.55	0.59
Gender of vendor *(ref: female)*						
Male	**−0.79** **	−0.33	−0.31	**−0.87** **	0.14	−1.23
Unknown	−0.14	0.47	0.28	0.33	**0.63** *	0.97
Sound of name of vendor *(ref: French sounding names)*						
Unknown	**−0.58** **	**−0.56** **	**−0.82** ***	−0.29	**−1.11** ***	−1.48
Non-French	−0.24	−0.55	−0.67	−0.11	**−1.00** **	−0.81

Notes: Probit model specification, coefficient estimates reported; the *t*-statistics and the confidence intervals were calculated using the bootstrap method with 10,000 draws; *** significant at the 1% level, ** significant at the 5% level, * significant at the 10% level. Labels for columns*: (1) 22 year old woman, French origin, (2) 22 year old woman, African origin, (3) 42 year old man, French origin, (4) 22 year old man, French origin, neutral neighborhood, (5) 22 year old man, French origin, disadvantaged neighborhood, (6) 22 year old woman, African origin.*

Table A4. Non-Negative Response Rates for the 6 fictional individuals by the type of Lodging (hotel, Bed and Breakfasts, Campgrounds).

	Non-Negative Response Rates (in %)	Discrepancy from Reference Case (in % Points)	Prob. Value
Hotels			
22 year old woman of French origin	58.3	**−5.37** *	**0.059**
22 year old woman of African origin	56.4	**−7.36** **	**0.026**
42 year old man of French origin	63.7	0.01	0.987
22 year old man of French origin (reference)	63.7		
22 year old man of French origin, disadvantaged neighborhood	50.7	**−13.06** ***	**0.000**
22 year old man of African origin	61.2	−2.56	0.448
Bed and Breakfasts			
22 year old woman of French origin	44.5	−2.64	0.258
22 year old woman of African origin	37.3	**−9.83** ***	0.000
42 year old man of French origin	57.3	**10.20** ***	0.000
22 year old man of French origin (reference)	47.1		
22 year old man of French origin, disadvantaged neighborhood	34.8	**−12.36** ***	0.000
22 year old man of African origin	37.4	**−9.75** ***	0.000

Table A4. *Cont.*

	Non-Negative Response Rates (in %)	Discrepancy from Reference Case (in % Points)	Prob. Value
Campgrounds			
22 year old woman of French origin	65.3	−0.26	0.920
22 year old woman of African origin	56.6	**−9.02** ***	0.001
42 year old man of French origin	70.9	**5.34** **	0.045
22 year old man of French origin (reference)	65.6		
22 year old man of French origin, disadvantaged neighborhood	60.0	**−5.55** **	0.037
22 year old man of African origin	57.3	**−8.30** ***	0.001

Notes: The *t*-statistics and the confidence intervals were calculated using the bootstrap method with 10,000 draws; *** significant at the 1% level, ** significant at the 5% level, * significant at the 10% level.

Table A5. Summary of discrimination patterns.

Type of Market	Candidate Profiles					
	A Young French Male, Neutral Neighorhood	**B Young French Female, Neutral Neighorhood**	**C Young African Female, Neutral Neighorhood**	**D Older French Male, Neutral Neighorhood**	**E Young French Male, Disadvantaged Neighorhood**	**F Young African Male, Neutral Neighorhood**
Used car purchase (Table 3)	Reference	negative			Negative	Negative
Access to car loan (Table 4)		Reference		positive		
Terms of car loan	reference	negative				
Access to car insurance (Table 5)				Reference	Negative	
Cost of car insurance (Table 5)	Negative (pay more)			Reference	Negative (pay more)	Negative (pay more)
Access to supplemental health Insurance (Table 6)	Reference		negative			
Cost of health insurance (Table 7)	Positive (pay less)	Positive (pay less)	Positive (pay less)	Reference	Positive (pay less)	Positive (pay less)
Access to training (Table 1)			Reference	Positive		
Acquisition of enterprise (Table 2)	Reference				Positive	Negative
Access to lodging (Table 8)	Reference	negative	Negative	Positive	Negative	Negative

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