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**CREAM SKIMMING AND DISCRIMINATION  
IN ACCESS TO MEDICAL CARE:  
A FIELD EXPERIMENT**

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# Cream skimming and Discrimination in access to medical care: a field experiment

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## Abstract:

*This study measures the differences in patients' access to care for three medical specialties (dentists, gynecologists and psychiatrists) and according to two criteria: the patient's ethnic origin, indicated by the consonance of her first and last names, and the fact of benefiting from means-tested health care coverage. It is based on a nationally representative telephone test with more than 1,500 medical offices covered and 4,500 appointment requests. The study does not show the presence of substantial discrimination toward the patient of African origin. The results indicate that patients with means-tested medical coverage are less likely to get an appointment in the three medical specialties tested. This is partly, but not entirely, due to the lower payment associated with this type of medical coverage.*

**Keywords:** cream-skimming, discrimination, access to care, care refusal, correspondence test

**Codes JEL:** J14, J15, J18, I14

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## 1. Introduction

Research on discrimination has focused generally on measuring and interpreting the discriminatory phenomenon by focusing on a small number of criteria (sex, ethnic origin or place of residence) and a small number of markets (mainly the labor market and, more recently, the housing market).<sup>1</sup> Certain areas and criteria are not sufficiently covered by research: the area of access to medical care is one of them.

However, in many countries, including France, the legal framework prohibiting discrimination applies fully to access to healthcare, one of the areas recognized by the law. Access to medical care is a basic need that is essential in different fundamental areas, such finding a job. Admittedly, health professionals are allowed to refuse care; however, this is only possible under certain conditions within a complex legal framework. Discriminatory denial of care is unlawful (Dreyfus 2014). Refusing to provide care to someone because of ethnicity or because the person is covered by means-tested health care schemes targeted at poor households, is not only an unethical medical act, but also a crime under the law and a matter of public interest (Ministère de la Santé 2010). This is also problematic because it reduces the effectiveness of public policies aimed at ensuring universal access to medical care.

Some studies in the medical literature have highlighted the presence of a feeling of discrimination among some patients (D'Anna et al. 2018). Other studies have shown, using clinical information, that ethnic minorities get less or inferior care, even when an extensive set of characteristics have been controlled for (Bach et al. 1999; Shapiro et al. 1999). However, studies undertaking an experimental evaluation of ethnic origin discrimination in the field of care refusal are scarce in the economic literature. More studies have been conducted on inequality in the refusal of care to patients based on their health coverage, particularly in the United States and Germany (Werbeck, Wübker, and Ziebarth, 2021). This inequality in refusal by health care providers is generally referred to as cream skinning. However, the mechanisms behind this penalty experienced by patients with means-tested health coverage are not yet entirely clear. Furthermore, little investigation has been conducted in the case of France and few practical recommendations that do not involve an overhaul of the financing of the health system, have been given.

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<sup>1</sup> See for instance the surveys of Bertrand and Duflo (2017) and Neumark (2018).

We attempt to fill this gap by experimentally assessing the presence of cream skimming and discrimination in the refusal of health care to a female patient. Two discrimination criteria are tested: ethnic origin and the fact of benefiting from means-tested health care coverage. The experiment consists of a telephone test conducted between February and May 2019 to solicit appointments from a large sample of specialized medical practitioners, representative at the national level. The tests cover three medical specialties: gynecologists, dentists and psychiatrists. For each specialty, three types of female patients requested an appointment: a reference patient; a patient revealing her African origin through her surname (sometimes with a Muslim consonance); a patient indicating that she benefits from means-tested health care coverage. Furthermore, we differentiate between the discrimination toward two different types of means-tested coverage in order to give insight into the reason for the discriminatory behavior. We tested 1,500 medical offices (500 per specialty), with 4,500 actual appointment requests. We test for the case of direct discrimination, a direct refusal of care, but we also check for more indirect discrimination, such as a long wait before the appointment.

The main contribution of this article is to provide the first large-scale experimental measure of ethnicity-based discrimination in health care refusal. We also add to the broader literature on cream skimming of patients depending on their medical coverage in several ways. First, we based our results on a large, nationally representative sample of specialist physicians. Second, we disentangle the different reasons that may explain a physician's refusal of a patient depending on her medical coverage: expectation of problems due to the patient's social precariousness; level of remuneration; different forms of perceived remuneration for the physician, which may involve additional administrative tasks for the physician. Third, we provide evidence on the effectiveness of an innovative French initiative that aims to reduce the refusal of patients with means-tested medical coverage. Finally, we provide one of the first analyses of patient cream-skimming based on their medical care coverage in France.

The study does not show the presence of substantial discrimination toward patients of African origin. However, we show that patients with means-tested medical coverage are less likely by between 12% and 21% depending on the medical cover, to get an appointment in the three medical specialties tested. We show that this situation is partly due to lower remuneration for the medical practitioners, but discrimination also exists when there is no loss of remuneration for the physician. We also show that the lack of information provided to the secretariat of the

physicians on these means-tested coverages is likely to explain part of the discrimination. Our results also suggest that acceptance by a practitioner of a controlled pricing practice option, which consists of the signatory practitioners committing to a certain percentage of consultations with patients with means-tested medical coverage in exchange for a better valuation of their activity (i.e. annual bonus), tends to reduce cream-skimming. Finally, we show that there is no strong evidence of discrimination in the indirect refusal of care in the form of longer waiting times before the appointment.

The next section gives an overview of the literature on ethnic discrimination and cream skimming in health care refusal. In the third section, we indicate the institutional context and give the hypotheses that will be tested in the subsequent analysis. The fourth section describes the methodology of the test. The dataset is presented in section five and the results in section six. We conclude in section seven.

## **2. Literature review**

Perceived discrimination in access to health care is well documented in countries such as France (Rivenbark and Ichou, 2020) and the United States (De, 2020). In contrast, measures of objective discrimination related to ethnicity are very rare. In the United States, using observational data, Chandra and Staiger (2010) find that women and black people receive fewer treatments than men and white people. However, to our knowledge, the main experimental evidence is the study by Sharma, Mitra, and Stano (2015), which found nonsignificant discrimination toward Black and Hispanic patients. However, this test suffers from a lack of power due to small sample size as only 317 fictitious black patients were considered. Three other small scale studies have been conducted in the United States (Shin et al. 2016; Leech, Irby-Shasanmi, and Mitchell 2019; Kugelmass 2016). Schulman et al. (1999), using actor-patients in a laboratory context, have shown that similar patients of different ethnicities or genders get different recommendations from physicians. Alsan, Garrick, and Graziani (2019) conducted an experiment on the demand side of preventive care. They show that, although there is no evidence of race preference by patients, African American patients are more likely to use preventive care when the physician is African American.

Regarding patient skimming based on medical coverage, a wide range of observational studies shows that patients with MEDICAID in the United States are more often refused care by

physicians (Alexander and Schnell 2017; Clemens and Gottlieb 2014; Decker 2015; Polsky et al. 2015; Resneck, Pletcher, and Lozano 2004) and that patients with public medical coverage in Germany have to wait longer for an appointment (Heinrich, Wübker, and Wuckel 2018; Kuchinke, Sauerland, and Wübker 2009; Luque Ramos, Hoffmann, and Spreckelsen 2018; Schwierz et al. 2011). Hulleger and Klein (2010) also show that patients with private medical coverage in Germany are healthier than those with public medical coverage due to better access to preventive care. There is also some experimental evidence for this. The most recent example is that of Werbeck, Wübker, and Ziebarth (2021). They found that, in Germany, people with private insurance have more appointments than those with public insurance. In the same country, Lungen et al. (2008), Heinrich, Wübker, and Wuckel (2018) and Kuchinke, Sauerland, and Wübker (2009) found that people with public insurance wait longer for an appointment than those with private insurance. In the United States, Skaggs et al. (2006), Chou et al. 2018 and Bisgaier and Rhodes (2011) also show that being covered by MEDICAID reduces the likelihood of getting an appointment. Evidence is limited to the United States and Germany. A few tests have been conducted in France, but they have involved small samples of localities, particular specialties and have a small number of observations (Desprès and Naiditch 2006; Desprès et al. 2009).

Compared with the study by Werbeck, Wübker, and Ziebarth (2021), which is closest to ours, we build our results on a nationally representative sample of the three medical specialties considered. Furthermore, our sample size is three times larger, which allows for particularly high-powered statistical tests. We also use the combination of two types of means-tested medical coverage to more explicitly disentangle the effect of mechanisms that could explain the differences in appointments obtained according to medical coverage. Although the level of physician payment associated with the patient's medical coverage is likely to be one of the main mechanisms, it is not necessarily the only one. Different forms of medical coverage may signal different socio-economic characteristics and a difference in the perceived remuneration for the physician, which may involve extra administrative tasks for the physician.

Indeed, some studies have also shown that medical care can be influenced by the patient's level of education and income. Laudicella, Siciliani, and Cookson (2012) and Monstad, Engesaeter, and Espehaug (2014) showed that in England and Norway, respectively, patients with lower levels of education and income have longer waiting times. Education level also

appears to have an effect on access to an appointment (Angerer, Waibel, and Stummer 2019) and level of treatment (Gottschalk, Mimra, and Waibel 2020).

### **3. Background and hypothesis**

#### **3.1 Institutional context**

About 25 criteria of discrimination are prohibited by French law and European commitments and it is technically not possible to draw up a protocol to cover all of them. The scope of the evaluation was limited to two criteria: economic vulnerability, which, here, corresponds to being a beneficiary of means-tested health care coverage and ethnic origin. One of our objectives is to understand the reason for discrimination by studying separately the prevalence of refusals for two types of means-tested health care coverage and the levels of discrimination present among regulated and unregulated medical practitioners.

In France, the financing of a medical act is divided into two parts: the compulsory part is covered by the universal health benefit (PUMA), the complementary part (also called "co-payment") is at the patient's expense but a complementary medical insurance can be subscribed to cover it. For example, the regulated fee for a psychiatric consultation is €46.7. The universal health benefit system (PUMA) covers 70% of the cost, i.e. €32.7. The remaining cost of €14 is charged to the patient. This complementary part can be a barrier to accessing care when an individual cannot afford complementary medical insurance.

In consequence, access to healthcare for disadvantaged households is facilitated by the coverage of their health expenses through two types of reimbursements: the compulsory part is covered by the universal health benefit (PUMA), the complementary part is reimbursed by the universal complementary health coverage (CMU-C) or partially covered by the complementary health assistance (ACS).<sup>2</sup> The two types of medical care coverage contribute to removing the financial barriers to access to care for more than 7 million poor people who

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<sup>2</sup> All persons who work or reside in France on a stable and regular basis benefit from a reimbursement of the compulsory part under the Universal Health Benefit (PUMA). The sums normally borne by the household (flat-rate contribution of €1, medical deductibles, etc.) are also reimbursed.

benefit from it at the end of May 2019 (5.64 million for the CMU-C and 1.7 million for the ACS). These social benefits are granted on a means-tested basis.

People who reside in France on a stable and regular basis and whose monthly income is less than €746 benefit from the complementary universal health coverage introduced in 1999. The CMU-C provides free coverage of the complementary part of health expenses (including hospital expenses). It also includes coverage packages for dental care, glasses or hearing aids.<sup>3</sup> People whose monthly resources are slightly higher, between €746 and €1007, are entitled to ACS, created in 2004 to reduce the threshold effect at the end of the CMU-C. This aid makes it possible to reduce, and, in some cases, to cover the full cost of an annual contribution to a complementary health insurance. The level of assistance is progressive with the age of the patient.<sup>4</sup>

### 3.2 Hypotheses

People who are covered by these means-tested healthcare schemes may suffer from lower access to medical care for different reasons. We establish several hypotheses that could explain this difference of access. The first hypothesis (H1), is that these means-tested benefits act as a signal of poverty and lead the specialist physician to prefer better-off patients. Physicians may expect richer patients to be healthier and to have fewer comorbidities, which would imply shorter treatments. In this case, we should find a lower level of discrimination toward people with ACS as it is aimed at people who are a little better off than CMU-C. The second hypothesis (H2) is that beneficiaries of these medical coverages are penalized because of the reduction in the physician's remuneration due to the fact that both forms of coverage prevent overcharging of fees. In France, the national agency (*Assurance maladie*) that pays for most medical expenses has fixed a fee for each medical procedure and covers 70% of this fee (PUMA). The remaining costs are covered by the complementary insurance. However, some unregulated physicians do not apply these fees and charge higher fees. In this case, the complementary insurance may not be sufficient to cover the costs and the difference may be charged to the patient. For example, the regulated fee (*tarif conventionnel*) is €23 for a simple

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<sup>3</sup> There are 5.63 million CMU-C beneficiaries as at 31 December 2018 with a budget cost of €2.3 billion (source: CMU-C fund activity report).

<sup>4</sup> There are 1.65 million beneficiaries of the ACS as at 31 December 2018 for a budget cost of €390 million.



gynecology consultation but unregulated practitioners in Paris often charge up to 120 €. Because CMU-C and ACS prevent overcharging of fees, cream-skimming should be higher among unregulated physicians for whom the opportunity cost of accepting an ACS or CMU-S patient is higher than for regulated medical practitioners.<sup>5</sup> Finally, the last hypothesis (H3) is that means-tested patients are disadvantaged because of the administrative costs incurred by the physicians. Patients with means-tested coverage do not have to advance the fees. To be refunded, physicians have to perform administrative procedures and there is a delay between the medical act and payment. Physician payment requests are similar for both programs and, in fact, are not much more burdensome than for a patient without these forms of medical coverage. But practitioners may expect these costs to be higher due to a lack of information about these programs: the tasks take longer when they are unfamiliar and the number of them may be overestimated. In this case, we should find a stronger penalty against ACS than against CMU-C because CMU-C has existed for longer and is more commonly used than ACS. These three hypotheses are not mutually exclusive. Furthermore, the H1 and H2 tests are both based on the comparison of appointments obtained by CMU-C and ACS patients. In consequence, it will not be possible to reject one of the hypotheses but only to confirm one of them, the one that dominates the other.

The criterion of ethnicity is the most studied in terms of discrimination, particularly in employment (Bertrand and Mullainathan 2004). This discrimination may occur in access to medical care due to physician's preference for patient of the same ethnic group (H4). As indicated by Alsan, Garrick, and Graziani (2019), taste-based discrimination (Becker 1957) on the part of the patient or doctor could imply that individuals are averse to interacting with those who do not share their racial background. Our last hypothesis (H5) is that the perceived discrimination can also reflect practitioners' difficulties in interpreting symptoms reported by patients from foreign minorities, given linguistic and cultural differences (Balsa and McGuire 2001). Here is a resume of our five hypothesis:

H1: Means-tested health care coverage acts as a signal of poverty and lead to the physician preferring a less poor patient.

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<sup>5</sup> Unregulated physicians are free to choose their consultation fees while regulated physicians usually have to apply the regulated fees. With a few exceptions, a regulated physician who takes on a patient with means-tested medical coverage suffers no loss of revenue.

H2: Because CMU-C and ACS prevent overcharging of fees, the opportunity cost to accept a patient with ACS or CMU-C is higher for unregulated physicians.

H3: Means-tested patients are disadvantaged because of the administrative costs incurred by physicians.

H4: There is taste-based discrimination toward the patient of foreign origin on an ethnic origin basis

H5: Linguistic and cultural differences make the physician reluctant to accept patients of African origin

## **4. Experimental protocol**

### **4.1 A telephone test**

Access to care tests were carried out using the most common way people take medical appointment, by telephone request. Only the appointment booking stage was tested, i.e. the response of the medical secretariat or health professional after becoming aware of the tester's insurance status. It therefore involved exploiting responses to requests of a spontaneous nature that were not medical emergencies.

This testing method, or situation test, is widely used in research on discrimination and is recognized as one of the only ways for providing objective and direct evidence of differential treatment between candidates. Today, it is mainly used in the field of employment or housing. The use of this method in the field of access to care has several specific advantages. One is that it is not necessary to construct detailed fictitious applications which may limit the external validity of the tests carried out on the labor market. However, it is necessary to define the requests with a pre-determined rationale in order to increase the chances of success of the applicants. Secondly, there is no a priori selection of job or housing offers and therefore no selection bias from the point of view of the structure of offers and companies.

### **4.2 Two criteria: means-tested medical coverage and ethnic origin**

The protocol for this research measures the prevalence of refusal of care according to ethnic origin and medical coverage. In this study, all fictive patients are women. Two ethnic origins were considered: a candidate who indicates by her first name and surname a French origin and a candidate whose surname indicates an African origin. The choice was made of a

candidate from a West African country because it is very common among people of foreign origin in France. As this population is mainly composed of Christians and Muslims, we alternate first names with both consonances. Thus, the first name of the patient with an African surname suggests either a Muslim (e. g. Fatou, Aïcha, Aminata) or a non-Muslim identity (e. g. Grace, Philomene, Honorine), the selection of the first name being random. To avoid detection, a total of 44 different first and last names were used. Widespread surnames have been chosen that clearly indicate an origin from a West African country. Table A1 in Appendix presents the ranking of nine of the first names and surnames used in our test. The ranking is based on the total number of female first names given in France in 1985 and in the total number of surnames given in 1981-1990. All of the last names and all but one of the first names used in the test are in the first quartile of names for the period under consideration.

For each health professional tested, three profiles of candidates for care were systematically sent over two consecutive days to reduce the risk of detection. These candidates contacted the same medical office, which reduces the risk of bias due to unobserved differences in the characteristics of practitioners. Contact is made by phone. At the time of the test, in early 2019, it was very common to make medical appointments by telephone, despite the increase in the use of online tools for planning and scheduling of appointments. In the French medical system, it is the patient's doctor, a general practitioner, who must refer the patient to a specialist but it is the patient herself who must make the appointment.

#### **4.3 Scripts and preliminary testing**

The three fictitious patients were:

- i) a patient giving a French sounding surname and first name (reference patient);
- ii) a patient giving a French-sounding surname and first name and indicating either that she benefits from the CMU-C (1 time out of 2), or from the ACS (1 time out of 2);
- iii) a patient giving an African sounding surname and first name indicating possession of social assistance (alternating between CMU-C and ACS). For each health professional, the type of complementary assistance announced was the same as that of patient n°2.

The reference patient always called last. A test was only valid if all three patients were able to make direct telephone contact to request an appointment. In this experiment, the order in

which the applicants call the physician was difficult to randomize. Because the order of contacts has sometimes been shown to influence the probability of a positive response, we chose to have the reference patient call last. This position is associated with the lowest probability of a positive response in labor market correspondence tests and should ensure that, if anything, we underestimate discrimination. However, in the case of a medical appointment, there is no reason why the order of the call should be systematically associated with the probability of a positive response.

The appointment scheduling scripts are both simple and neutral. In the event of a request for clarification from the medical secretariat concerning the reason for the appointment (almost systematically), the modal medical reason for consultation in each specialty was indicated, without mentioning any medical urgency in order to avoid biasing the results due to the unavailability of the health professional. The reasons for consultation were written to be equivalent in nature from one candidate to another, and in intensity from one profession to another. Thus, the test results are comparable across health professions. The requests for appointments from the three patients were thus similar in nature with the exception of the criterion being tested. Notably, they suggested a similar low level of urgency. The scripts were written to be realistic with sufficient detail to limit the risk of the caller having to respond to unexpected queries (source of bias). The scripts were also planned not to result in a formal appointment to avoid cluttering the cabinets with false appointment requests.<sup>6</sup>

The appointment request scripts were tested in two different ways. First of all, two medical secretaries, with extensive experience in specialized medical practices, were interviewed to validate the realism of the appointment request scripts. In particular, they were asked if it was realistic for applicants to announce their distinctive characteristics from the outset, for example specifying at the beginning of the conversation that they were beneficiaries of CMU-C or ACS. Then, the scripts were validated during a day of preliminary tests for each of the three professions. This test phase confirmed that announcing having complementary health care assistance (ACS or CMU-C) when making a telephone appointment was realistic. It is not mandatory to report, but since people with ACS and CMU-C medical coverage are often turned down because of their medical coverage, they usually mention it during their first contact. The

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<sup>6</sup> The accepted appointments were therefore all cancelled.

contact scripts were modified in the margin at the end of this test phase. The scripts selected are included in Appendix 2.

To avoid any bias, these scripts were also randomly assigned to the three interviewers who performed the tests and were randomly switched between them throughout the testing.<sup>7</sup>

#### **4.4 Sample of physicians**

An original feature of this study is to provide a representative measure of the level of discrimination in each medical specialty. This representativeness is guaranteed by randomly selecting physicians from an exhaustive list of specialist physicians in France.<sup>8</sup> The testing is therefore representative of the overall diversity of the medical professions targeted by the study, including spatial diversity.

The test covers three specialties: gynecologists, dentists and psychiatrists. The decision was made to test 500 physicians in each of the three professions.<sup>9</sup> The random sample of medical practitioners was taken from the reference database of the public health insurance website available to the public (Ameli.fr). The site provides an exhaustive list of gynecologists (about 6,000 practitioners), psychiatrists (about 6,000 practitioners) and dentists (about 35,000 practitioners). The three samples of specialists were randomly selected from this sampling frame. The representativeness of these samples was verified according to various criteria, including geographical distribution and medical density (see below). The files include the name, address and telephone number of each medical office. The regulation/nonregulation of practitioners' fees and the rate applied for a standard intervention were also collected from Ameli.fr.

## **5. Data**

### **5.1 Data collection process**

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<sup>7</sup> The three interviewers do not have any particular accent. Therefore, the signal for ethnicity comes only from the first and last names, not from accent. Although some studies, such as Massey and Lundy (2001), have found that the accent signal can lead to strong discrimination, we believe that since most French people of African descent do not have a particular accent, it is more relevant to consider the name signal.

<sup>8</sup> The exhaustive list of physicians in France is taken from the French Health Insurance website (<https://www.ameli.fr/>).

<sup>9</sup> The observation unit here is the medical office as it appears in the health insurance directory. This is a physical address for a health professional, whether working alone, with a medical secretariat or in a health center.

The telephone campaign was spread over three months, from early February to late April 2019. The receptions of the practitioners are frequently saturated and it is often necessary to call many times to reach the medical secretary or physician. Two or three attempts were sometimes made to obtain contact. If the first call was successful, the second call was made. A greater number of reminders were then made in an attempt to have two telephone contacts. Finally, the reference patient in turn attempted to contact the health professional to obtain a valid test. A test is valid when all three patient profiles have had the same contact person on their call. Again, sometimes a large number of calls needed to be made to obtain the appointment. At the end, we got 1,513 valid tests: 505 for Gynecologists, 500 for dentists and 508 for psychiatrists.

## 5.2 Sample characteristics

A sample of at least 500 health professionals was obtained for each of the three medical specialties, by random selection from the total population of physicians in metropolitan France. Selection of physicians to call was random, but because we only retain valid tests, i.e. tests for which all three phone calls were answered, the characteristics of the sample may differ from the characteristics of the total population. Table 1 presents the characteristics of the three samples and those of the total population of the three medical specialties concerned for a few major geographical areas. It can be seen that the spatial distribution and the pricing regulation of health professionals in these samples are very close to those of the total population.

Table 1. Representativeness of the samples

	Dentist	
	Test sample Proportion	Total population Proportion
Ile-de-France	0.19	0.16
Paris	0.07	0.06
Lyon	0.04	0.03
Marseille	0.04	0.04
Unregulated	Almost 0	Almost 0
Number of observations	500	35,848
	Gynecologist	
	Test sample Proportion	Total population Proportion
Ile-de-France	0.26	0.20
Paris	0.13	0.10

Lyon	0.03	0.05
Marseille	0.07	0.07
Unregulated	0.61	0.59
Number of observations	505	5,974
Psychiatrist		
	Test sample Proportion	Total population Proportion
Ile-de-France	0.27	0.28
Paris	0.17	0.19
Lyon	0.04	0.05
Marseille	0.07	0.08
Unregulated	0.37	0.33
Number of observations	508	6,895

*Note: The proportion of unregulated practitioners in the total population is obtained from the database on the website [www.ecosante.fr](http://www.ecosante.fr)*

*Source TEPP-CNRS, Testing TRICERATOPS*

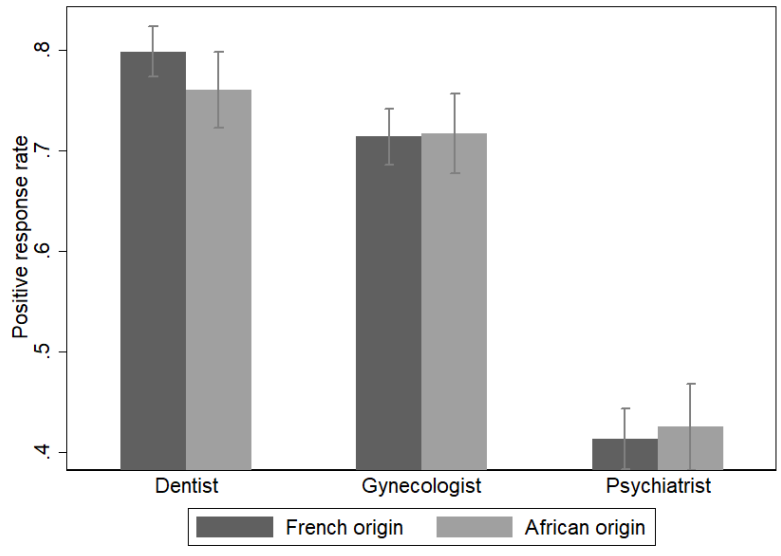
## 6. Results

### 6.1 Graphical results

Figure 1 presents the rates of positive responses (appointment booked) obtained by the French and African patients for the different medical specialties tested. The appointment booking rate for psychiatrists is much lower than for dentists and gynecologists. Regardless of the specialty, however, there was no significant difference in positive response for the two patients of different origins.

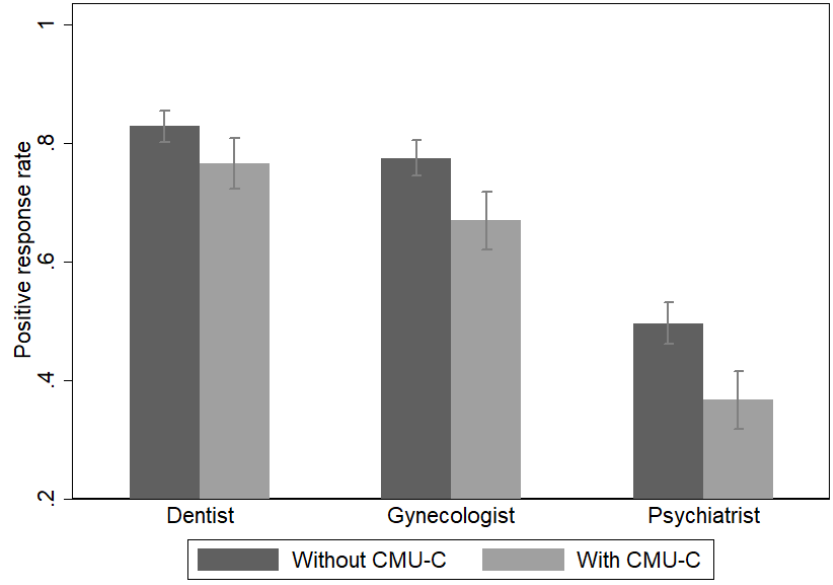
Concerning the differences in positive response between patients with and without means-tested health care coverage, Figure 2 shows that the positive response rate to the patient with CMU-C is always lower than to the one without it (the difference is not significant among dentists at this stage of the analysis of the raw statistics). The same phenomenon can be observed for ACS (Figure 3), where the differences are larger and significant in each of the three specialties.

Figure 1. Positive response rate by patient ethnicity



Notes: Bars indicate confidence intervals at the 95% threshold.  
Source TEPP-CNRS, Testing TRICERATOPS

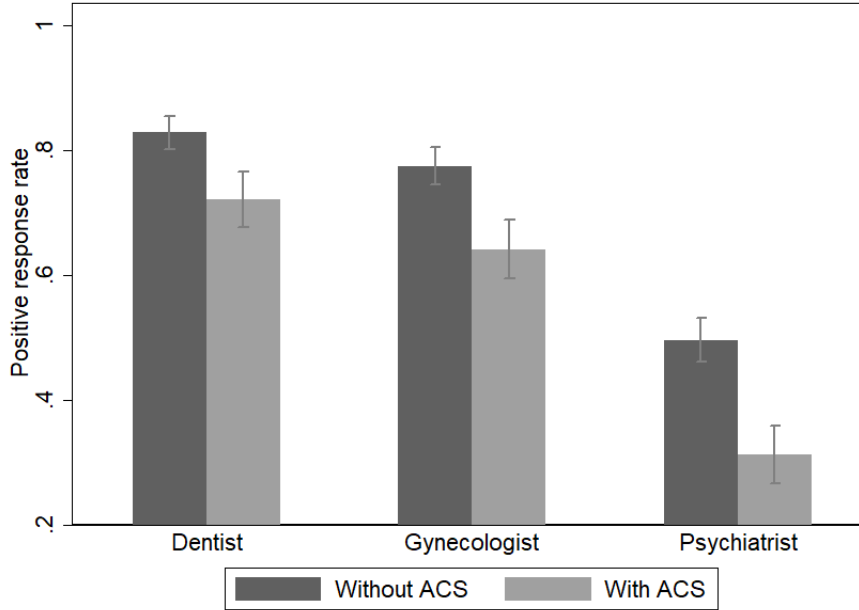
Figure 2. Positive response rate by means-tested health care coverage (with and without CMU-C)



Notes: Bars indicate confidence intervals at the 95% threshold. ACS patients are excluded.  
Source TEPP-CNRS, Testing TRICERATOPS

Figure 3. Positive response rate by means-tested health care coverage (with and without ACS)





Notes: Bars indicate confidence intervals at the 95% threshold. CMU-C patients are excluded.  
Source TEPP-CNRS, Testing TRICERATOPS

## 6.2 Overall results

Table 2 presents the results of the econometric analysis that highlight the effect of the patient's characteristics (benefiting from CMU-C or ACS, ethnic origin) on her probability of obtaining an appointment. The variable to explain is "to get an appointment or not to get it". The main specification is:

$$Appt_{ip} = \alpha + \beta Afr_i + \gamma CMU_i + \lambda ACS_i + \delta X_{ip} + \tau_s + \phi_p + \varepsilon_{ip} \quad (1)$$

Where  $Appt_{ip}$  is a dummy variable indicating whether or not physician  $p$  offers an appointment to patient  $i$ .  $Afr_i$ ,  $CMU_i$  and  $ACS_i$  are the variables of interest which indicate whether the patient is of African origin and benefits from CMU-C or ACS medical coverage, respectively.  $X_{ip}$  is a set of variables indicating the time of the call of patient  $i$  to physician  $p$  (month, day of the month and time of the day (morning, noon, afternoon)) as well as the respondent's gender, the role of the respondent and an interviewer fixed effect.  $\tau_s$  are medical specialty fixed effects. Finally, physician fixed effects  $\phi_p$  are introduced in the last specification to replace the medical specialty fixed effects.

Table 2 gives the linear probability models estimates related to equation (1). The controls are introduced progressively in columns (1) to (4). Results vary little with the introduction of control variables, which allow for the month, day and time of day of the appointment, medical

specialty, gender of the interlocutor, role of the interlocutor (secretariat/medical practitioner) and identity of the interviewer (three interviewers participated in the testing and their role was randomly switched throughout the data collection) as well as physician fixed effects to be taken into account.<sup>10</sup>

The probability of getting an appointment does not vary significantly by ethnic origin of the patient. The estimated coefficient is an average effect for Muslim and non-Muslim patients. However, it may be observed in Appendix Table A3 that the effect is not significantly different by patient religion. Because of the sample size, standard errors are limited and the estimates are relatively precise. An absence of significant results could, nonetheless, be the result of a lack of statistical power. In consequence, we now investigate whether these results can be interpreted as the absence of a treatment difference between patients of French and African origin. To this aim, we compute the minimum detectable effect (MDE), which indicates the smallest change we are able to detect.<sup>11</sup> We compute the MDE for a two-sided hypothesis test, at the 5% significance level, and a statistical power of 20%. The results are presented in Table A4 in Appendix. We can observe that the MDE is about 1.3 points and is always within the 95% confidence interval of our point estimates. In consequence, although we cannot exclude the presence of a positive response difference of less than 1.3 percentage points between patients of French and African origin, which could not be satisfactorily detected, looking at the upper bound of the confidence interval, we can reasonably exclude a difference above 4.2 percentage points. With an average appointment rate of 64%, this corresponds to a maximum of 6.5 percent difference in relative terms. This is well below the level of discrimination found in the hiring or housing market, where the minority candidate generally suffers a penalty of over 20% (Chareyron et al. 2021; Acolin, Bostic, and Painter 2016). This suggests a relatively specific behavior by physicians with respect to ethnic discrimination. This could be because physicians are governed by the Hippocratic tradition that focuses on the patient in the physicians' decisions (Kesternich, Schumacher, and Winter 2015). These results are also consistent with those of Brinbaum, Safi, and Simon (2018), who found less reported ethnic discrimination in health care in France than in other areas, such as the labor market.

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<sup>10</sup> As can be seen in table A2 of Appendix 3, the results from probit and random effects probit models are very similar.

<sup>11</sup> If  $\hat{\beta} > 0$ , the MDE is calculated as:  $2.80 \times SE(\hat{\beta})$ . If  $\hat{\beta} < 0$ , the MDE is calculated as:  $-1.12 \times SE(\hat{\beta})$ . See Bozio, Garrouste, and Perdrix (2021) for details.

The positive response rate to patients with CMU-C or ACS, on the other hand, is 8 and 13 percentage points lower, respectively, compared to patients not covered by these schemes. This corresponds to differences of 12% and 21%, respectively. It can be seen from a test of equality of coefficients that the penalty related to the ACS is significantly higher than the penalty related to the CMU-C at the 1% level. This difference contradicts the hypothesis (H1) of physician avoidance of patients with low socio-economic characteristics, since CMU-C patients are poorer than ACS patients, or at least that this aversion is dominated by the disadvantages of ACS. We believe that the higher penalty faced by ACS patients may reflect less knowledge of the system by the physicians or expectations of health professionals regarding the complexity of the system, administrative constraints, delays and rejections of reimbursements by primary health insurance funds (H3).

Table 2. Effect of ethnic origin and CMU-C and ACS health care coverage on obtaining an appointment

	(1)	(2)	(3)	(4)
African origin	-0.005 (0.009)	-0.006 (0.009)	-0.019* (0.011)	-0.018 (0.012)
CMU-C	-0.102*** (0.017)	-0.085*** (0.016)	-0.095*** (0.017)	-0.081*** (0.016)
ACS	-0.138*** (0.017)	-0.128*** (0.017)	-0.138*** (0.018)	-0.137*** (0.016)
Specialty FE	NO	YES	YES	NO
Controls	NO	YES	YES	YES
Time FE	NO	NO	YES	YES
Physician FE	NO	NO	NO	YES
Observations	4,539	4,527	4,527	4,527
R-squared	0.016	0.156	0.159	0.747

Notes: \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ . Standard errors clustered at the physician in parentheses. The time fixed effects are: the month, day and time of day when the appointment was made. The control variables are: the gender of the interlocutor, the roles of the interlocutor and the interviewer (three interviewers participated in the testing and their role was randomly switched throughout the data collection).

Source TEPP-CNRS, Testing TRICERATOPS

### 6.3 Differences depending on the specialties and the nature of the interlocutor

We now look at the heterogeneity of the different types of discrimination according to the specialty and the characteristics of the interlocutor (practitioner/secretary and woman/man). To this end, an estimate similar to the one presented in column (4) of Table 2 was made for

each sub-population. The results are presented in Table 3, where each column corresponds to a sub-population.

The overall result is that there is no significant difference in ethnic discrimination between the different subgroups tested (H4 and H5 are invalidated). However, the extent of discrimination against CMU-C and ACS patients triples in psychiatry compared to the dental specialty: the gap between the reference patient and the CMU-C or ACS beneficiary is 14.4 points and 22.2 points respectively for a psychiatrist compared to 3.8 points and 8.0 points for a dentist. These differences are significant at the 5% level. They can be explained in part by the larger share of gynecologists and psychiatrists who charge unregulated fees compared to dentists. However, even taking into account the differences in fees, there is still a distinct difference for psychiatrists. We think that one explanation could be that these physicians may associate social precariousness with poor mental health and might therefore expect the duration of the consultations to be longer with patients with means-tested medical coverage. Indeed, the duration of the consultation could be particularly sensitive to increased difficulties of the patient in this specialty. However, this hypothesis of a social precariousness effect is not clearly supported empirically since the difference between specialties is more pronounced for ACS patients than for CMU-C patients.

Discrimination against CMU-C is also significantly higher when the practitioner responds to the patient him or herself than when the interlocutor is a secretary. On average, the chances of obtaining a medical appointment for a CMU-C (ACS) beneficiary decrease by 16.4 percentage points (16.1) if it is the practitioner who responds directly to her request, compared to 6.4 points (12.7 points) if it is a secretary who manages the appointment. This lower level of skimming by the secretary may be due to the fact that the physician has an interest in selecting patients based on their medical coverage but does not want to specifically ask his or her secretary to make the selection. Another interesting result is that practitioners treat ACS and CMU-C patients in the same way and that the difference in treatment between these two patient groups comes mainly from the secretariat. It may be that there is a lack of knowledge on the part of the secretariat about the ACS program that makes them assume that they will have to undertake increased administrative tasks.

Finally, we observe no significant difference in penalties for CMU-C and ACS according to the gender of the respondent.

Table 3. Heterogeneity according to the specialty and characteristics of the interlocutor

	Specialty			Respondent characteristics			
	Dentist	Gynecologist	Psychiatrist	Practitioner	Secretariat	Female	Male
African origin	0.000 (0.028)	-0.014 (0.017)	0.008 (0.022)	-0.004 (0.037)	-0.018 (0.013)	0.000 (0.028)	-0.014 (0.017)
CMU-C	-0.038 (0.026)	-0.089*** (0.026)	-0.144*** (0.029)	-0.164*** (0.042)	-0.064*** (0.017)	-0.038 (0.026)	-0.089*** (0.026)
ACS	-0.080*** (0.029)	-0.132*** (0.027)	-0.222*** (0.029)	-0.161*** (0.050)	-0.127*** (0.018)	-0.080*** (0.029)	-0.132*** (0.027)
Observation	1,498	1,508	1,521	690	3,598	1,498	1,508
R-squared	0.667	0.758	0.731	0.689	0.774	0.667	0.758

Notes: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Standard errors clustered at the physician in parentheses. The time fixed effects are: the month, day and time of day when the appointment was made. The control variables are: the gender of the interlocutor, the roles of the interlocutor and the interviewer (three interviewers participated in the testing and their role was randomly switched throughout the data collection).

Source TEPP-CNRS, Testing TRICERATOPS

#### 6.4 The role of pricing regulation

In this section, we want to first test the H2 hypothesis that one of the reasons physicians cream-skim patients with means-tested medical coverage is a belief that he or she will suffer a loss of earnings. The CMU-C and ACS imposes various legal obligations on health professionals, with the introduction of the full third-party payer<sup>12</sup>, the prohibition on charging for fee overruns and the introduction of maximum rates for costly care (dental prostheses, optical prostheses, hearing aids). The opportunity cost of a patient in CMU-C or ACS is actually higher for professionals whose fees are freely determined.<sup>13</sup> If CMU-C or ACS beneficiaries access the office, this mechanically constrains the practitioner's time available for other patients. In consequence, if this hypothesis is true, we would expect to observe more refusals of means-tested patients by unregulated physicians than by regulated physicians.

Furthermore, we want to give evidence on the effectiveness of a French initiative to reduce the refusal of care to patients with means-tested medical coverage. This initiative is a controlled pricing practice option called OPTAM. Participation is optional for the physician. The signatory practitioners commit to a certain percentage of consultations for patients in

<sup>12</sup> The beneficiaries do not need to advance the medical fees.

<sup>13</sup> Not all physicians are free to set their fees, only those denoted unregulated can do so. In order to be able to charge unregulated fees, physicians must meet certain prerequisites. The prerequisites are, for example, to have been a former head of university clinic, a hospital assistant or a military physician. The choice of pricing sector is made at the beginning of the private practice and cannot be changed afterwards.

medical emergency situations and for CMU-C or ACS beneficiaries, which allows them to benefit from a better valuation of their activity carried out at the agreed rates and an annual bonus.

In Table 4, column (1), the relationship between discrimination and the practitioner's area of practice is tested.<sup>14</sup> In order to do so, interaction terms between the application of unregulated fees by the physician and the variables of interest are included. In Column (2), we test the effect of the OPTAM. Then, in the second column, a variable crossing the patient's status with the practitioner's signature of a controlled pricing practice option (OPTAM) is added.

We observe in column 1 that discrimination against patients with CMU-C or ACS exists for regulated practitioners but is stronger among unregulated practitioners: the increase in discrimination among regulated practitioners is about 6 percentage points for both ACS and CMU-C (although not significant for ACS). This validates H2 and confirms physicians' sensitivity to the monetary incentive (Schmitz 2013). However, loss of income cannot fully explain the phenomenon of refusal of means-tested patients since regulated physicians also substantially penalize this type of patient. Other mechanisms such as expected administrative costs (H3), especially by the secretariat, and possibly also the preference for healthier patients, especially by psychiatrists, appear relevant to explain the situation. Column 2 shows that discrimination against CMU-C and ACS is very significantly reduced among practitioners who have signed the OPTAM. Physicians who apply unregulated fees and who do not participate in the OPTAM initiative penalize CMU-C and ACS patients significantly more than regulated physicians: about 11 points more. On the contrary, unregulated physicians participating in OPTAM do not penalize CMU-C and ACS patients more than regulated physicians do.<sup>15</sup> This result is consistent with Brosig-Koch, Kairies-Schwarz, and Kokot (2017) and shows that changing the pricing format can be effective in changing patient treatment. However, although we provide some elements, strictly speaking, we have not carried out an evaluation of OPTAM as such. Consequently, these results may be due to the fact that OPTAM signature may be related to

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<sup>14</sup> The estimate is made only for the gynecological and psychiatry specialties because almost all dentists are regulated.

<sup>15</sup> Some regulated practitioners with a permanent right to exceed the regulated fees may also sign the OPTAM.

specific physician characteristics such as altruism, which would partly explain the reduction in means-tested patient refusal.

Table 4. Heterogeneity according to the physician's area of practice (psychiatrists and gynecologists)

	(1)	(2)
African origin	-0.028 (0.019)	-0.025 (0.019)
CMU-C	-0.089*** (0.024)	-0.091*** (0.024)
ACS	-0.150*** (0.026)	-0.160*** (0.027)
African origin × Unregulated	0.019 (0.023)	0.026 (0.026)
CMU-C × Unregulated	-0.070* (0.036)	-0.106** (0.041)
ACS × Unregulated	-0.061 (0.038)	-0.110*** (0.042)
OPTAM		0.019 (0.039)
African origin × OPTAM		-0.023 (0.030)
CMU-C × OPTAM		0.107** (0.051)
ACS × OPTAM		0.176*** (0.046)
Observations	2,751	2,751
R-squared	0.763	0.766

Notes: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Standard errors clustered at the physician in parentheses. The time fixed effects are: the month, day and time of day when the appointment was made. The control variables are: the gender of the interlocutor, the roles of the interlocutor and the interviewer (three interviewers participated in the testing and their role was randomly switched throughout the data collection).

Source *TEPP-CNRS, Testing TRICERATOPS*

## 6.5 Indirect refusal of care

Finally, the presence of indicators of discrimination less direct than appointment scheduling is tested, namely the offer or not of the possibility of choosing the date of the appointment and the time delay before the appointment.<sup>16</sup>

<sup>16</sup> Another form of potential indirect care refusal is the repeated and abusive referral to another colleague or a health center without stated medical reason. This is considered as a direct refusal in our study. It is however a very limited phenomenon which represents fewer than 100 answers in the whole experiment.

We have collected information on the wait times proposed by the specialists before the appointment date, when they proposed one. The average time to appointment by patient profile are presented in Table 5 and are expressed in days from the date of the appointment. On average, delays are much shorter for dentists (less than 20 days) than for gynecologists (almost 45 days), with psychiatrists in a median position. The gaps for potentially discriminated patients are generally small. The maximum penalties are 5 days for the African patient seeking a gynecological appointment and 4 days for the CMU-C or ACS patient seeking an appointment at a dental practice. Tables A5 and A6 in Appendix 4, which present the estimates of equation (1) on these two outcomes, confirm that there is no significant difference, when an appointment has been made, in the waiting time before the consultation and in the proposal to adjust the date of the consultation. These results suggest that refusals of care are mainly in the form of outright refusal rather than a longer appointment period.

Table 5. Time to appointment for patients who have received a positive response (in days)

	Dentist	Gynecologist	Psychiatrist	Total
Reference	19.78	44.27	30.90	31.34
CMU-C/ACS	23.87	45.19	29.73	33.07
African origin	19.65	49.37	26.04	32.46
African origin CMU/ACS	22.35	47.57	32.04	33.84
Total	21.48	45.98	29.78	32.45

Source: TEPP-CNRS, Testing TRICERATOPS

### 7. Conclusion

Studies that evaluate the phenomenon of discrimination in the field of care refusal are very scarce in the economic literature. In this study, discriminatory refusal of care is measured for two means-tested health coverages, CMU-C and ACS, and also according to the patient's ethnic origin. Discrimination tests were conducted in three medical specialties on the basis of nationally representative samples of practitioners.

Overall, few differences are found when the patient's name implies an African origin. However, in each of the three specialties, a significant gap in access to care was observed between the reference patient and the CMU-C/ACS patient, to the detriment of the latter. We obtain penalties of 12% and 21%, respectively, in relative terms for these two medical coverages. These differences may be due either to a lack of knowledge of the ACS or to administrative difficulties and longer repayment periods anticipated by health professionals.



In addition, differences in treatment against patients receiving CMU-C or ACS are significant for regulated practitioners and almost doubled for unregulated practitioners, confirming the presence of economic rationality on the part of health professionals in their discriminatory refusal of care. Moreover, the penalty for means-tested patients is substantially reduced if the physician is signed up to a tariff control protocol (Controlled Tariff Practice Option, or OPTAM) and who therefore have a financial interest in receiving patients in CMU-C and ACS. This result suggests that a relatively small adjustment to the pricing mechanism can eliminate a substantial portion of the incentive problems in the health care financing system.

As with any empirical work on experimental data, this study has several limitations that should be recalled. Two criteria of discrimination were tested, the ethnic origin of the patient and whether or not she is a beneficiary of a means-tested complementary health care. This multi-criteria approach makes it possible to better measure the extent of the phenomena in a relative way, and it facilitates their interpretation. However, it remains limited and partial. It makes it possible to measure differences when first accessing the health professional, but it does not cover differences in treatment that may occur downstream during medical management, from diagnosis to the provision of care. Only access to a medical appointment is tested and not the quality of the service provided by the practitioners. The tests were carried out over a given period of time, between February and May 2019, and reflect the situation over this particular period in metropolitan France.

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# Appendix

## Appendix 1: First names and last names used in the test

Table A1. Popularity of first names and last names used in the test

First name	Ranking in the total number of female first names in 1985	Last name	Ranking in the total number of last names in 1981-1990
<b>African origin, Muslim religion</b>		<b>African origin</b>	
Fatou	578	Mbaye	10,602
Aicha	242	Ndour	41,675
Aminata	310	Ndiaye	1,742
<b>Catholic religion</b>		Diouf	5,725
Grace	899	Mbengue	32,602
Philomène	2,033	<b>French origin</b>	
Honorine	525	Morel	20
<b>French origin</b>		Robert	17,027
Elodie	5	Mercier	36
Emilie	2	Simon	15
Stéphanie	8		

Ranking on 3,531 first names given in France in 1985 and 218,983 last names given in France in 1981-1990.  
Source: INSEE

## Appendix 2. Details of the scripts

### Gynecologist

1.

*Hello, hello, I'm Mrs. Petit and I would like to make an appointment with Dr. XXX.*

*[If requested by the medical secretariat on the reason for the appointment]*

*As I didn't have my period, I did a pregnancy test at the pharmacy and according to the result, I am pregnant. I should have had my period two weeks ago.*

*[If further request from the medical secretariat]*

*I don't know Dr. XXX, it's my first appointment*

*I'm not being followed by another gynecologist*

*[Waiting for the date proposal]*

*Wouldn't it be possible sooner? Well, in that case, I'll try to get an appointment with another gynecologist. Thank you.*

2.

*Hello ma'am, I'm Anne Garnier, I'm contacting you because I would like to have an appointment with Dr. XXX. I was told to say I have the CMU-C[ACS 1/2] to make an appointment.*

*[If requested by the medical secretariat on the reason for the appointment]*

*I think I'm pregnant. I did a urine test at the pharmacy and it was positive. Normally, I should have had my period about two weeks ago.*

*[If further request from the medical secretariat]*

*I haven't had an appointment with Dr. XXX yet, this is the first time I've called you.*

*I don't have a gynecologist, I'm usually followed by my doctor.*

*[Waiting for the date proposal]*

*Isn't it possible sooner? Well then, thank you but I'll try to find an appointment earlier somewhere else.*

*3 and 4 are used in different cabinets:]*

*3.*

*Hello, my name is Grâce Coulibaly, I'm calling you to see if I can get an appointment with Dr. XXX*

*[If requested by the medical secretariat on the reason for the appointment]*

*I should have had my period about two weeks ago, and since I didn't have them I bought a test at the pharmacy and according to the result, I would be pregnant.*

*[If further request from the medical secretariat]*

*This is my first request for an appointment in your office.*

*I am not followed by any other specialist because I moved last year*

*[Waiting for the date proposal]*

*I was hoping to get an appointment sooner, maybe I'll try another practice in this case. Thank you very much.*

*4.*

*Hello, my name is Philomène Mbaye and I'm calling to see if I can get an appointment with Dr. XXX. I have CMU-C[ACS ½], I was advised to tell you when I make appointments.*

*[If requested by the medical secretariat on the reason for the appointment]*

*I should have had my period about two weeks ago, and since I didn't have them I bought a test at the pharmacy and according to the result, I would be pregnant.*

*[If further request from the medical secretariat]*

*This is my first request for an appointment in your office.*

*I am not followed by any other specialist because I moved last year*

*[Waiting for the date proposal]*

*I was hoping to get an appointment sooner, maybe I'll try another practice in this case. Thank you very much.*

### **Dentist**

*1.*

*Hello, hello, I'm Mrs. Petit and I would like to make an appointment with Dr. XXX.*

*[If requested by the medical secretariat on the reason for the appointment]*

*I've had a really bad toothache for several days. I took Doliprane, but it doesn't work.*

*[If further request from the medical secretariat]*

*I don't know Dr. XXX, it's my first appointment*

*I'm not being followed by another dentist*

*[Waiting for the date proposal]*

*Wouldn't it be possible sooner? Well, in that case, I'll try to get an appointment with another dentist. Thank you.*

2.

*Hello ma'am, I'm Anne Garnier, I'm contacting you because I would like to have an appointment with Dr. XXX. I was told to say I have the CMU-C[ACS 1/2] to make an appointment.*

*[If requested by the medical secretariat on the reason for the appointment]*

*It's for a toothache. It started last weekend and since then I've been in a lot of pain. I went to the pharmacy, they gave me Advil, but the pain comes back quickly.*

*[If further request from the medical secretariat]*

*I haven't had an appointment with Dr. XXX yet, this is the first time I've called you.*

*I don't have a dentist; my last consultation was about ten years ago in another department.*

*[Waiting for the date proposal]*

*Isn't it possible sooner? Well then, thank you but I'll try to find an appointment earlier somewhere else.*

*3 and 4 are used in different cabinets:]*

3.

*Hello, my name is Grâce Coulibaly, I'm calling you to see if I can get an appointment with Dr. XXX*

*[If requested by the medical secretariat on the reason for the appointment]*

*It's a problem with a tooth that really hurts me. It happened gradually last week, I take painkillers, but it keeps me from eating and sleeping.*

*[If further request from the medical secretariat]*

*This is my first request for an appointment in your office.*

*I am not followed by any other specialist because I moved last year*

*[Waiting for the date proposal]*

*I was hoping to get an appointment sooner, maybe I'll try another practice in this case. Thank you very much.*

4.

*Hello, my name is Philomène Mbaye and I'm calling to see if I can get an appointment with Dr. XXX. I have CMU-C[ACS ½], I was advised to tell you when I make appointments.*

*[If requested by the medical secretariat on the reason for the appointment]*

*It's a problem with a tooth that really hurts me. It happened gradually last week, I take painkillers, but it keeps me from eating and sleeping.*

*[If further request from the medical secretariat]*

*This is my first request for an appointment in your office.*

*I am not followed by any other specialist because I moved last year*

*[Waiting for the date proposal]*

*I was hoping to get an appointment earlier, maybe I'll try another firm in that case. Thank you very much.*



## **Psychiatrist**

1.

*Hello, hello, I'm Mrs. Petit and I would like to make an appointment with Dr. XXX.*

*[If requested by the medical secretariat on the reason for the appointment]*

*Let's just say I haven't felt well for almost a year, I have insomnia and I've lost a lot of weight for no reason. I feel anxious and it doesn't go away.*

*[If further request from the medical secretariat]*

*I don't know Dr. XXX, it's my first appointment*

*I'm not being followed by another shrink*

*[Waiting for the date proposal]*

*Wouldn't it be possible sooner? Well, in that case, I'll try to get an appointment with another psychiatrist. Thank you.*

2.

*Hello ma'am, I'm Anne Garnier, I'm contacting you because I would like to have an appointment with Dr. XXX. I was told to say I have the CMU-C[ACS 1/2] to make an appointment.*

*[If requested by the medical secretariat on the reason for the appointment]*

*Generally speaking, for several months now, I have been feeling very anxious. I don't sleep very well. I also lost a lot of weight without dieting. I think I have a problem. It is also having consequences in my work.*

*[If further request from the medical secretariat]*

*I haven't had an appointment with Dr. XXX yet, this is the first time I've called you.*

*I have never consulted a psychiatrist before.*

*[Waiting for the date proposal]*

*Isn't it possible sooner? Well then, thank you but I'll try to find an appointment earlier somewhere else.*

*3 and 4 are used in different cabinets:*

3.

*Hello, my name is Grâce Coulibaly, I'm calling you to see if I can get an appointment with Dr. XXX*

*[If requested by the medical secretariat on the reason for the appointment]*

*I feel exhausted and very stressed. I have great difficulty sleeping at night. Everyone tells me it's going to pass, but it's been going on for months. I have lost a lot of weight unintentionally, this is the first time this has happened to me. I also have more and more difficulties in my relationships with others, in my family and at work. I think I need to consult.*

*[If further request from the medical secretariat]*

*This is my first request for an appointment in your office.*

*I have never consulted before*

*[Waiting for the date proposal]*

*I was hoping to get an appointment sooner, maybe I'll try another practice in this case. Thank you very much.*

4.

*Hello, my name is Philomène Mbaye and I'm calling to see if I can get an appointment with Dr. XXX. I have CMU-C[ACS ½], I was advised to tell you when I make appointments.*

*[If requested by the medical secretariat on the reason for the appointment]*

*I feel exhausted and very stressed. I have great difficulty sleeping at night. Everyone tells me it's going to pass, but it's been going on for months. I have lost a lot of weight unintentionally, this is the first time this has happened to me. I also have more and more difficulties in my relationships with others, in my family and at work. I think I need to consult.*

*[If further request from the medical secretariat]*

*This is my first request for an appointment in your office.*

*I have never consulted before*

*[Waiting for the date proposal]*

*I was hoping to get an appointment earlier, maybe I'll try another firm in that case. Thank you very much.*

### Appendix 3: Robustness

Table A2. Effect of ethnic origin and CMU-C and ACS health care coverage on obtaining an appointment (probit and random effects probit)

	(1)	(2)	(3)	(4)
African origin	-0.005 (0.009)	-0.005 (0.009)	-0.017 (0.012)	-0.015 (0.011)
CMU-C	-0.102*** (0.016)	-0.087*** (0.016)	-0.097*** (0.017)	-0.085*** (0.014)
ACS	-0.136*** (0.016)	-0.128*** (0.016)	-0.138*** (0.017)	-0.134*** (0.014)
Specialty FE	NO	YES	YES	YES
Controls	NO	YES	YES	YES
Time FE	NO	NO	YES	YES
Physician RE	NO	NO	NO	YES
Observations	4,539	4,405	4,405	4,405

Notes: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Standard errors clustered at the medical office in parentheses. The mean marginal effects of probit models are presented. The time fixed effects are: the month, day and time of day when the appointment was made. The control variables are: the gender of the interlocutor, the quality of the interlocutor and the interviewer (three interviewers participated in the testing and their role was randomly switched throughout the data collection).

Source TEPP-CNRS, Testing TRICERATOPS

Table A3. Effect of ethnicity by religion

	(1)	(2)	(3)	(4)
African origin	0.002 (0.016)	0.006 (0.015)	-0.007 (0.017)	-0.015 (0.016)
CMU-C	-0.102***	-0.086***	-0.096***	-0.081***

	(0.017)	(0.017)	(0.018)	(0.016)
ACS	-0.138***	-0.128***	-0.138***	-0.137***
	(0.017)	(0.017)	(0.018)	(0.017)
Muslim first name	-0.015	-0.022	-0.022	-0.005
	(0.025)	(0.023)	(0.023)	(0.019)
Specialty FE	NO	YES	YES	NO
Controls	NO	YES	YES	YES
Time FE	NO	NO	YES	YES
Physician FE	NO	NO	NO	YES
Observations	4,539	4,446	4,446	4,442
R-squared	0.016	0.155	0.159	0.748

Notes: \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ . Standard errors clustered at the physician in parentheses. The time fixed effects are: the month, day and time of day when the appointment was made. The control variables are: the gender of the interlocutor, the quality of the interlocutor and the interviewer (three interviewers participated in the testing and their role was randomly switched throughout the data collection).

Source TEPP-CNRS, Testing TRICERATOPS

Table A4: Confidence interval and Minimum Detectable Effect of the effect of ethnic origin

	(1)	(2)	(3)	(4)
African origin	-0.005 (0.009)	-0.006 (0.009)	-0.019* (0.011)	-0.018 (0.012)
CI 95%: Lower Bound	-0.023	-0.024	-0.041	-0.042
CI 95%: Upper Bound	0.013	0.012	0.003	0.006
MDE	-0.010	-0.010	-0.012	-0.013
Specialty FE	NO	YES	YES	NO
Controls	NO	YES	YES	YES
Time FE	NO	NO	YES	YES
Physician FE	NO	NO	NO	YES
Observations	4,539	4,527	4,527	4,527
R-squared	0.016	0.156	0.159	0.747

Notes: \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ . Standard errors clustered at the medical office in parentheses. The estimated coefficients for African origin are those presented in Table 2. The mean marginal effects of probit models are presented. The time fixed effects are: the month, day and time of day when the appointment was made. The control variables are: the gender of the interlocutor, the quality of the interlocutor and the interviewer (three interviewers participated in the testing and their role was randomly switched throughout the data collection).

Source TEPP-CNRS, Testing TRICERATOPS

## Appendix 4. Indirect care refusal

Table A5: Effect of ethnic origin and CMU-C and ACS coverages on the request for a preferred date for the appointment

	Request for a preferred date			
	(1)	(2)	(3)	(4)
African origin	-0.008 (0.014)	0.002 (0.013)	0.001 (0.015)	-0.004 (0.018)
CMU-C	0.009 (0.017)	0.007 (0.017)	0.002 (0.017)	0.005 (0.022)
ACS	-0.002 (0.018)	-0.007 (0.018)	-0.011 (0.018)	-0.018 (0.023)
Specialty FE	NO	YES	YES	NO
Controls	NO	YES	YES	YES
Time FE	NO	NO	YES	YES
Physician FE	NO	NO	NO	YES
Observations	2,897	2,834	2,834	2,644
R-squared	0.000	0.128	0.134	0.557

Notes: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Standard errors clustered at the physician in parentheses. The time fixed effects are: the month, day and time of day when the appointment was made. The control variables are: the gender of the interlocutor, the quality of the interlocutor and the interviewer (three interviewers participated in the testing and their role was randomly switched throughout the data collection).

Source *TEPP-CNRS, Testing TRICERATOPS*

Table A6: Effect of ethnic origin and CMU-C and ACS coverages on the temporal distance of the consultation when an appointment is made

	Time before appointment			
	(1)	(2)	(3)	(4)
African origin	0.955 (0.949)	0.416 (0.971)	0.717 (1.390)	0.778 (1.265)
CMU-C	1.144 (1.997)	1.039 (1.987)	1.218 (2.070)	0.018 (0.922)
ACS	2.082 (1.774)	1.222 (1.744)	1.415 (1.893)	0.511 (1.190)
Specialty FE	NO	YES	YES	NO
Controls	NO	YES	YES	YES
Time FE	NO	NO	YES	YES
Physician FE	NO	NO	NO	YES
Observations	2,863	2,800	2,800	2,599
R-squared	0.001	0.089	0.090	0.899

Notes: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Standard errors clustered at the physician in parentheses. The time fixed effects are: the month, day and time of day when the appointment was made. The control variables are: the

gender of the interlocutor, the quality of the interlocutor and the interviewer (three interviewers participated in the testing and their role was randomly switched throughout the data collection).

*Source TEPP-CNRS, Testing TRICERATOPS*

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