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Identifying a Discriminatory Equilibrium**

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## ABSTRACT

### Muslims in France: Identifying a Discriminatory Equilibrium\*

We analyze the assimilation patterns of Muslim immigrants in Western countries with a unique identification strategy. Survey and experimental data collected in France in 2009 reveal that Muslims and rooted French are locked in a sub-optimal equilibrium whereby (i) rooted French exhibit taste-based discrimination against those they are able to identify as Muslims and (ii) Muslims perceive French institutions as systematically discriminatory against them. This equilibrium is sustained because Muslims, perceiving discrimination as institutionalized, are reluctant to assimilate and rooted French, who are able to identify Muslims as such due to their lower assimilation, reveal their distaste for Muslims.

JEL Classification: C90, D03, J15, J71, Z12

Keywords: assimilation, Muslim and Christian immigrants, discrimination, France

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# 1 Introduction

Evidence about the assimilation patterns<sup>1</sup> of Muslim immigrants in Western countries is mixed. Using the United Kingdom (UK) Fourth National Survey of Ethnic Minorities, Bisin, Pattachini, Verdier and Zenou (2008, 2011a) find that attachment to the culture of origin<sup>2</sup> is lower for Muslims than for non-Muslims. Moreover, this attachment attenuates with time spent in the UK for non-Muslims; but for Muslims, attachment seems entirely unrelated to the number of years they have spent in the UK. Yet, these results are at odds with those of Manning and Roy (2010) who, using the UK Labour Force Survey in 2001, analyze respondents' probability of answering "British" when asked to define their identity. They show that newly arrived immigrants almost never think of themselves as British and that no difference exists between Muslims and non-Muslims. Moreover, they find that the probability of reporting a British identity increases with the time spent in the UK, at a similar rate for Muslims and for non-Muslims.<sup>3</sup>

These mixed results may derive, due to possible confounds such as race, ethnicity or nationality, from the difficulty of isolating a religion (Islam) effect on assimilation patterns.<sup>4</sup> As a matter of fact, Muslim immigrants typically migrate from *Muslim* countries, i.e. countries with few non-Muslim counterparts. This is the case, for example, of North African immigrants in France, Turkish immigrants in Germany and Pakistani and Bangladeshi immigrants in the UK. These confounds make it difficult to obtain a clean comparison for any European state, holding constant the country of origin, between the assimilation patterns of Muslim and non-Muslim immigrants.<sup>5</sup>

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<sup>1</sup>The dependent variable *assimilation* is specified, following Constant, Gataullina and Zimmermann (2009), along two dimensions: (i) "a weak identification with the ancestry", and (ii) "a strong identification with the host culture and society, coupled with a firm conformity to the norms, values, and codes of conduct" (p. 277).

<sup>2</sup>The attachment to the culture of origin is measured based on respondents' answers to three questions: (i) whether the individual considers as very important the role of religion in her life, (ii) whether the individual would have a problem with a close relative marrying a white person; and (iii) whether the desired proportion of one's ethnic group in the children's school is more than one half.

<sup>3</sup>The findings by Manning and Roy (2010) are in line with those provided by Constant, Gataullina and Zimmermann (2009) who, in the context of Germany, show no significant difference in the assimilation patterns of Christian and Muslim immigrants. Similarly Aleksynska (2011), relying on the European Social Survey, finds that civic participation is the same on average for Muslim and non-Muslim immigrants. Moreover, she shows that, even though assimilation is lower for newly arrived Muslims than for newly arrived non-Muslims, convergence between both groups is ensured after 20 years of residency.

<sup>4</sup>Divergent results from analyses of different host countries can also come from differences in attitudes toward immigrants across host populations.

<sup>5</sup>For instance, we emphasized in footnote 3 that Constant, Gataullina and Zimmermann (2009) find no significant difference in the assimilation of Christian and Muslim immigrants. Yet, they also show that Turks assimilate the least, thereby not perfectly addressing the issue of collinearity.

The objective of this paper is twofold. First, we want to compare the assimilation patterns, on average and over time, of Muslim and non-Muslim immigrants without running into identification problems. To do so, we rely on a survey that we conducted in France in 2009. This survey involves a set of second- and third-generation immigrants whose parents or grandparents migrated to France.<sup>6</sup> These immigrants belong to two ethno-linguistic groups in Senegal, the Joolas and the Serers. These ethno-linguistic groups are divided by religion, with one portion of them being Muslim and another portion being Christian. With the exception of religion, Senegalese Muslims (hereafter SM) and Senegalese Christians (hereafter SX) from these two ethno-linguistic groups are similar. They share the same culture and migrated to France at the same average time, during the early 1970s.<sup>7</sup> This sample allows us to isolate the religious effect from national, ethnic and racial confounds. Using our survey instrument, we can compare the assimilation patterns of SM and SX by measuring, consistent with Constant, Gataullina and Zimmermann (2009): (i) their attachment to their culture of origin; and (ii) their identification with the host culture and society.

Our results reveal that Muslim immigrants show significantly lower assimilation (i.e., higher attachment to their culture of origin and lower identification with the host culture and society) than do their Christian counterparts. Furthermore, when we distinguish between respondents whose ancestors arrived in France before 1970 and those whose ancestors arrived in France after 1970, we find that assimilation levels between SM and SX do not converge over time.<sup>8</sup>

What accounts for these results? Understanding the mechanism(s) behind the persistence of Muslims' lower assimilation in France constitutes the second objective of this paper. To do so, we rely on a field experiment we conducted in France in 2009.<sup>9</sup> The field experiment

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<sup>6</sup>In France, the term "immigrant" refers only to those permanently and legally residing in France who were born abroad. In this paper, we use the term much more broadly, viz., to refer to all residents in France who were born outside the EU during the 20th century, and their descendants.

<sup>7</sup>Focus on these Senegalese Muslims solves an identification problem that would have been impossible if the focus were on the principal Muslim immigrant group in France, viz. the North Africans, as there is no matched set of North African Christians to whom North African Muslims could be compared.

<sup>8</sup>In one of the instances measuring attachment to the country/continent of origin, we even find that these patterns diverge: SM higher attachment increases, while SX lower attachment decreases with the time spent in France.

<sup>9</sup>Technically, and relying on the taxonomy created by Harrison and List (2004), we have conducted a "framed field experiment" since, as we shall describe, we rely on a nonstandard subject pool, and these subjects receive an information set from the real world (the names of their game partners) that they can use in their game participation. We also ran a follow-up experiment in 2010 that also relied on a nonstandard subject pool that received an information set from the real world. Henceforth, for economy of expression, we refer to both interventions as "field experiments".

brings together rooted French (FFF),<sup>10</sup> SM and SX in the context of behavioral games. Our games are designed to illuminate how SM and FFF behave toward each other when trust and altruism are at stake (as compared to the way SX and FFF behave toward each other). Our experiment reveals that SM are less cooperative – notably with rooted French players – than are SX, and we take these results as supporting our survey finding that SM have assimilated in France less than have SX. Moreover, our games show that the persistence of Muslims’ lower assimilation is consistent with Muslims and rooted French being locked in a sub-optimal equilibrium whereby: (i) rooted French exhibit taste-based discrimination against those they are able to identify as Muslims (due to the fact that these Muslims keep recognizable Muslim first names); (ii) Muslims perceive French institutions as systematically discriminatory against them (and therefore<sup>11</sup> assimilate less).

The paper proceeds as follows. In Section 2, we introduce our survey data and the regression framework we use to analyze them. In Section 3, we present our survey results. Section 4 describes the field experiment. Section 5 presents our experimental results. Section 6 checks for robustness. Section 7 summarizes our major conclusions and discusses their policy implications for the assimilation of Muslim immigrants in France.

## 2 Survey data and regression framework

In this section, we present our survey, the questions we use to compare SM and SX assimilation patterns in France, and the regression framework that allows us to analyze this difference, on average and over time.

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<sup>10</sup>By rooted French or FFF, we refer to French citizens with four grandparents born inside metropolitan France (strictly speaking, FFF stands for “French citizens of France-born parents and of France-born grandparents”). We identify this set in order to maximally differentiate French citizens with no recent immigrant background (FFF) from those of recent migration to France (SM and SX).

<sup>11</sup>Identity economics indeed teaches us that if the cost of assimilation is sufficiently high (due for instance to taste-based discrimination by the dominant group), then it is rational for members of the minority to not assimilate (see Laitin (1995), Akerlof and Kranton (2000), Fang and Loury (2005) or Bisin, Patacchini, Verdier and Zenou (2011c) for rational models of identity choice; see Gould and Klor (2012) for empirical evidence on the strengthening effect of increased hostile attitudes against Muslims after 9/11 on Muslims’ ethnic identity in the US). Note that taste-based discrimination by the dominant group could even make rational the adoption by the minority of an in-group norm of punishment of assimilators. In the context of the relationship between Blacks and Whites in the US, this norm is referred to as the “acting white” phenomenon (see Fryer and Torelli (2010) for empirical evidence of this phenomenon and Fordham and Ogbu (1986), Fordham (1996), McWhorter (2000), Austen-Smith and Fryer (2005) and Eguia (2012) for its rational account).

## 2.1 The survey

Our survey of 511 Serers and Joolas in France, both Christians and Muslims, was administered from April to June 2009 by the professional survey firm Conseils-Sondages-Analyses (CSA) – see supplementary material. The survey relied on a non-random sample of 332 respondents initially contacted by linking Serer and Joola surnames with cell numbers,<sup>12</sup> and interviewed by telephone, and 179 respondents interviewed face-to-face through a chain referral sampling procedure.

The following four eligibility criteria were used: the respondent had to: (1) be 18 to 40 years of age, (2) be born in France, (3) have at least one parent or grandparent born outside of France, and (4) have at least one Serer or Joola-speaking grandparent.

Quotas were used to ensure better sample representativeness. Respondents represent 1.2% of the eligible population-base. We define as SM (SX) individuals who reported to be Muslim (Christian) and to belong to a family of Muslim (Christian) tradition. Overall, 466 respondents (91% of the whole sample) are classified as either SM or SX – 339 (or 73%) are classified as SM and 127 (27%) as SX.<sup>13</sup>

## 2.2 Measuring the assimilation patterns

We rely on two categories of questions to measure the assimilation patterns of SM and SX. The first category, meant to capture a respondent’s strength of identification with her ancestry, measures attachment to the respondent’s country (Senegal) or continent (Africa) of origin. The second category captures a respondent’s strength of identification with a now-secularized French culture and society.<sup>14</sup>

Attachment to the country or continent of origin is based on nine questions capturing: (i) whether the respondent has ever been to Africa (question Q61); (ii) whether the respondent sends remittances to Africa (question Q63); (iii) the degree of sympathy the respondent has toward Senegalese living in Senegal (questions Q65A); (iv) whether the grandparents of the

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<sup>12</sup>To avoid bias, we did not rely on landlines, as they would tap only the wealthiest, and least typical, of the immigrant population.

<sup>13</sup>The sample remains disproportionately Muslim, and this is not surprising given that Senegal is more than 90% Muslim. Our identification of two Senegalese ethnic groups with substantial numbers of Christians is key, given the predominance of Islam in Senegal.

<sup>14</sup>Assimilation into French culture can be measured in part by the reduction in the level in which religion infuses other aspects of life. Indeed, in the 2006 *World Values Survey* for France, 13% say that religion is very important to their lives; by contrast, in the 2008 *Afrobarometer* survey for Senegal, 95.8% say that religion is very important to their lives. Relying on our definition of assimilation, those who claim that religion is less important to their lives are thus assimilating into French norms.

respondent's best friend originate from Senegal or other African countries (question Q74); (v) whether the association the respondent belongs to is related to Senegal or to Africa (question Q84); (vi) whether the respondent believes she shares much in common with people of the same country of origin as her family (question Q85D); (vii) whether the respondent wants to be buried in Senegal or in Africa (question Q86); (viii) whether the respondent owns a home in Africa (question Q87); (ix) whether the respondent disapproves of a Senegalese student who chooses not to renounce a scholarship in a top French university to take care of a sick mother in Senegal (question Q89).

Respondent identification with French culture and society is based on seven questions capturing: (i) the degree of sympathy the respondent has toward French people (question Q65B); (ii) whether the respondent believes that immigrants should do whatever possible to avoid conflict with the hosting society (question Q69); (iii) whether the grandparents of the respondent's best friend originate from France (question Q74); (iv) whether the respondent shows political preferences that can be positioned on a typical left-wing/right-wing scale (question Q81);<sup>15</sup> (v) whether the respondent considers herself to share much in common with French people (question Q85B); (vi) whether the respondent wants to be buried in France (question Q86); (vii) whether the respondent approves of a scenario whereby a man of Senegalese origin hides from his white son's friends so that they may believe the son is rooted French (question Q88).

The strength of the respondent's identification with the host culture and society is also captured by the respondent's degree of secularization. This degree of secularization is based on six questions measuring: (i) the importance of god in the respondent's life (question Q57); (ii) whether the respondent would disapprove of her child marrying a religious-other (questions Q59 and Q60); (iii) the degree of sympathy the respondent has toward people sharing the same religion (questions Q65C and Q65D); (iv) whether the best friend of the respondent is of the same religion (question Q76); (v) whether the association the respondent belongs to is related to religion (question Q84);<sup>16</sup> (vi) whether the respondent believes she shares much in common with people of the same religion (question Q85G).

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<sup>15</sup>Politics in Senegal do not follow a typical left-wing/right-wing scale the way they do in France. Instead, the most common political dimensions in Senegal are region, Sufi order and cousinage (see Smith (2010)).

<sup>16</sup>Note that there is no difference in the probability of participating in an association between SM and SX.

## 2.3 The regression framework

To isolate whether SM and SX assimilation patterns differ on average, we estimate Equation (1):

$$y = a + b.\text{SM} + c.\text{Time} + \mathbf{d}'\mathbf{X} + \epsilon, \quad (1)$$

where  $y$  is the respondent's answer to one of the questions above. The dummy SM is equal to 1 if the respondent is SM and to 0 if the respondent is SX. Therefore, coefficient  $b$  captures the difference between the answer provided by SM respondents and the answer provided by SX respondents. The dummy Time is equal to 1 if the first migrant in the respondent's family arrived before 1970 and to 0 if she arrived after 1970.<sup>17</sup> We also control for  $\mathbf{X}$ , a vector of socioeconomic characteristics of the respondent. This vector contains information on characteristics that are either pre-treatment (i.e., they concern features of the household before migration of the first migrant to France) or exogenous. The pre-treatment control is the education of the first migrant. The exogenous controls are the gender and the age of the respondent. We do not include post-treatment (i.e., post-migration) controls since those would capture part of the "Muslim" effect and therefore bias the coefficient of the dummy SM.

To compare the assimilation patterns of SM and SX over time, we estimate Equation (2):

$$y = a + b.\text{SM} + c.\text{SM}.\text{Time} + d.\text{Time} + \mathbf{e}'\mathbf{X} + \epsilon, \quad (2)$$

where the reference category is composed of SX whose ancestors arrived after 1970. Therefore, coefficient  $d$  captures the difference in the answers provided by SX whose ancestors arrived before 1970 and SX whose ancestors arrived after 1970. In other words, it allows us to identify the evolution of SX assimilation patterns over time.<sup>18</sup> Following the same logic, the sum of coefficients  $c$  and  $d$  captures the difference in the answers provided by SM whose ancestors arrived before 1970 and SM whose ancestors arrived after 1970, and thus the evolution of SM assimilation patterns over time.<sup>19</sup> Consequently, the difference between

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<sup>17</sup>The year 1970 is not only the mean year but also the median year of arrival of SM and SX first migrants in France. Note that our results hold if we rely instead on a continuous variable to capture the time elapsed since arrival of the first migrants in France.

<sup>18</sup>Alternatively, coefficient  $d$  could capture the fact that the first migrants in SX families systematically differ with regard to assimilation, based on whether or not they arrived before 1970. We rule out this possibility in the robustness checks.

<sup>19</sup>Alternatively, the sum of coefficients  $c$  and  $d$  could capture the fact that the first migrants in SM families systematically differ with regard to assimilation, based on whether or not they arrived before 1970. We rule out this possibility in the robustness checks.

the evolution of SM and SX assimilation patterns over time is captured by coefficient  $c$ , that is by the coefficient of the interaction term  $SM \cdot Time$ . Note that the difference in the answers provided by SM and SX whose ancestors arrived after 1970 is provided by coefficient  $b$ . Similarly, the difference in the answers provided by SM and SX whose ancestors arrived before 1970 is provided by the sum of coefficients  $b$  and  $c$ . Therefore, the difference-in-difference between these two effects is again captured by coefficient  $c$ .

### 3 Survey results

In this section, we show (by estimating Equation (1)) that SM and SX assimilation patterns differ on average, with SM assimilation into French culture and society significantly lower than SX assimilation into French culture and society. We then show (by estimating Equation (2)) that there is no convergence between SM and SX, namely that SM lower assimilation persists over time.

#### 3.1 Do SM and SX assimilation patterns differ on average?

Tables 1, 2a and 2b provide results from our estimation of Equation (1) on the three sets of questions measuring the assimilation patterns of migrants: attachment to Senegal and Africa (Table 1), identification with France (Table 2a), and secularization (Table 2b).

Table 1 presents OLS estimates for Equation (1) over the set of questions that capture the attachment of the respondent to Senegal and/or Africa. The coefficient of the dummy SM is always positive. Moreover, it is almost always significant at least at the 95% confidence level. The exceptions are displayed in columns 2, 3 and 9, which capture respectively: whether the respondent sends remittances to Africa; the degree of sympathy the respondent has toward Senegalese living in Senegal; and whether the respondent disapproves of a Senegalese student who chooses not to renounce a scholarship in a top French university to take care of a sick mother in Senegal. Still, across six of our nine indicators, our results clearly indicate that, on average, SM respondents show a significantly stronger attachment to Senegal and Africa as compared to their Christian counterparts.<sup>20</sup>

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<sup>20</sup>Controlling for the dummy  $Time$ , as well as for the respondent's socioeconomic characteristics, substantially reduces the number of observations due to missing data for these controls. However, the significance level for the dummy SM does not change if we impute missing data, with the exception of column (2) (i.e., whether the respondent sends remittances to Africa) where the dummy SM becomes significant (results available upon request).

Table 2a presents OLS estimates for Equation (1) over the set of questions that capture identification with the French culture and society, excluding secularization. The coefficient of the dummy SM is always negative. Moreover, it is always significant at least at the 90% confidence level. Our results clearly indicate that, on average, the identification of SM respondents with the host culture and society is significantly lower than the one observed among SX.<sup>21</sup>

Table 2b presents OLS estimates for Equation (1) over the set of questions that capture secularization.<sup>22</sup> The coefficient of the dummy SM is always positive. Moreover, it is almost always significant at least at the 90% confidence level. The exceptions are displayed in columns 3 and 5, which capture – respectively – the degree of sympathy the respondent has toward people sharing the same religion, as well as whether the association the respondent belongs to is related to religion. Across four of our six indicators, our results clearly indicate that, on average, SM respondents display significantly less secularization as compared to their Christian counterparts.<sup>23</sup>

### **3.2 How does the difference in assimilation patterns between SM and SX evolve over time?**

Tables 3 through 4b provide results from our estimation of Equation (2) on the three sets of questions measuring the assimilation patterns of migrants and for which the dummy SM was significant in Tables 1 through 2b: attachment to Senegal and Africa (Table 3), identification with France (Table 4a), and secularization (Table 4b). Our results show that, starting from a lower level of assimilation, SM do not catch up with their matched SX respondents over time.

Table 3 presents OLS estimates for Equation (2) over the set of questions that capture the attachment of the respondent to Senegal and Africa. The fact that the coefficient of the interaction term SM.Time is not significant in columns 1 through 5 indicates that higher SM attachment and lower SX attachment to their country or continent of origin do not change over time.<sup>24</sup> Note, however, that this coefficient is positive and significant in Model

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<sup>21</sup>The significance level for the dummy SM does not change if we impute missing data, with the exception of column (1) (the degree of sympathy of the respondent toward French people) where the dummy SM loses significance (results available upon request).

<sup>22</sup>Given the coding of our measures of secularization, a positive coefficient indicates less secularization.

<sup>23</sup>The significance level for the dummy SM does not change if we impute missing data (results available upon request).

<sup>24</sup>Note that these results hold when we impute missing data, with the exception of column (5) where

(6) (whether the respondent owns a home in Africa), indicating a divergence between SM and SX over time. More specifically, this probability increases over time for SM (the sum of coefficients  $c$  and  $d$  in Equation (2) that appear on lines (2) and (3) in Table 3 is positive, although not significant<sup>25</sup>). By contrast, it decreases over time for SX (coefficient  $d$  in Equation (2) that appears on line (3) in Table 3 is negative, although not significant<sup>26</sup>).

Table 4a presents OLS estimates for Equation (2) over the set of questions that capture identification with French host culture and society excluding secularization. The fact that the coefficient of the interaction term SM.Time is never significant indicates that SM lower identification and SX higher identification with the host culture and society follow parallel trends, and thus do not converge, over time.<sup>27</sup>

Table 4b presents OLS estimates for Equation (2) over the set of questions that capture secularization. The coefficient of the interaction term SM.Time, which captures our difference-in-difference analysis and appears on line (2) in Table 4b, is never significant. This lack of significance indicates that higher SM attachment and lower SX attachment to their religion-of-origin persist over time.<sup>28</sup> Overall, our analysis shows that SM and SX assimilation patterns either do not converge, or actually diverge, over time.

Note that selection bias in the first migrants would lead us to measure only a biased causal effect of the duration of stay on SM and SX assimilation. More precisely, the first migrants in the families of our SM and SX respondents might systematically differ with regard to patterns of assimilation, based on whether or not they arrived before 1970. If so, then the persistent divergence in assimilation levels between SM and SX over time could be due not only to the impact of time spent in France on SM and SX assimilation, but also to differences in assimilation levels at the time of initial migration, based on pre vs. post-1970 settlement. We address this issue in the robustness checks and find no empirical support for selection among the first migrants.<sup>29</sup>

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the positive coefficient of the interaction term SM.Time becomes significant (i.e., SM and SX attachment to Senegal and Africa diverges over time). More precisely, the desire to be buried in Senegal or in Africa increases over time for SM, while it decreases over time for SX (results available upon request).

<sup>25</sup>The p-value associated with the Wald procedure that tests whether the sum of coefficients  $c$  and  $d$  is statistically different from 0 is equal to 0.32.

<sup>26</sup>The p-value associated with coefficient  $d$  is equal to 0.14.

<sup>27</sup>These results hold when we impute missing data (results available upon request).

<sup>28</sup>These results hold when we impute missing data (results available upon request).

<sup>29</sup>Reverse causation could also prevent us from holding the relationship between the duration of stay and assimilation of SM and SX as causal. Indeed, the persistence of high SX assimilation and low SM assimilation over time could conceivably be due to the fact that (i) SX who find it harder to assimilate leave France, while SM who find it harder to assimilate stay in France; and (ii) SX who find it easier to assimilate stay in France, while SM who find it easier to assimilate leave France. Yet we find this scenario highly implausible.

In sum, our results reveal that Muslim immigrants show significantly lower assimilation (i.e., higher attachment to their culture of origin and lower identification with the host culture and society, with - notably - lower secularization) than do their Christian counterparts. Moreover, they show that this difference does not decrease with the time immigrants spend in France. Given our identification strategy, ours is the first analysis to identify a specific Muslim effect on immigrant assimilation in France.

## 4 Experimental set up

Understanding the mechanism(s) behind the persistence of Muslims' lower assimilation in France constitutes the second objective of this paper. To do so, we rely on field experiments that we conducted in France in 2009 (the same year we collected our survey data) and in 2010. The 2009 field experiment brings together rooted French (FFF), SM and SX in the context of behavioral games. In this section, we first present our 2009 subject pool. We then describe our 2009 games, designed to allow us to examine how SM and FFF (relative to SX and FFF) behave toward each other with regard to trust and altruism. Finally, we explain, based on the 2010 field experiment, how we identify that FFF condition their behavior specifically on the Muslimness of our players, rather than on some other factor, i.e. the foreignness of players' names.

### 4.1 The 2009 subject pool

In March 2009, we set up a series of experimental games among FFF, SM and SX. For those games, we recruited 27 Senegalese players: 16 self-identified as Muslims (SM) and 11 as Christians (SX).<sup>30</sup> We relied upon three separate networks to recruit these Senegalese players. Two of the networks came from the ethnographers who were conducting family histories for our wider research project, and who were asked to recruit subjects by merely telling them they had heard about experiments with a chance to earn a lot of money. No mention was to be made about Senegalese specificity or religion. The third network came from a Senegalese night watchman (not from the Joola or Serer communities) who worked at a student dorm. He was given a quota for the SM and SX and paid for each recruit who showed up for registration and participated in the games. Here again, no mention was to be

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<sup>30</sup>Our subjects are coded by religious self-identification or, when that information is missing, ascribed religious heritage based on the advice of an ethnographer with expertise on Senegalese culture, who served on our research team.

made about Senegalese specificity or religion. Table 5 presents the results of a difference of means test comparing the socioeconomic characteristics of our SM and SX participants. SM and SX do not differ on critical characteristics such as gender, age, education or household income. The only characteristic on which they differ is religiosity with SX being significantly more religious than SM. This introduces a bias we treat in our regressions by controlling for the socioeconomic characteristics of SM and SX players and notably for their religiosity.<sup>31</sup>

It is important to emphasize that African Muslims are less spontaneously associated with Islam in the French collective imagination because they know little to no Arabic and interact indiscriminately with African Muslims and African non-Muslims (Diop (1988)). Any evidence of FFF discrimination against SM should thus be interpreted as a lower bound on the magnitude of FFF anti-Muslim discrimination: levels of discrimination against Maghrebis, the Muslims who are at the center of public debates about the role of Islam in France, would almost certainly be higher (had there been a way to identify a Muslim effect from a Maghrebi immigrant sample in France) than those we find for Senegalese Muslims.

To complement our game sessions, we also recruited 53 non-Senegalese players. The ethno-religious breakdown of these 53 non-Senegalese players was as follows: 29 players, among whom 21 were FFF, were of European background; 12 players were of African background; and 12 players were of North African background.

We recruited these players in the ethnically diverse setting of the 19th district of Paris.<sup>32</sup> For our experiments to be unbiased, we could not give players the impression that we wanted to know if they were conditioning their moves on the religious backgrounds of our Senegalese players, and therefore needed to conduct the experiments in a setting in which the Senegalese players would not appear to be exceptional. The 19th district, with its high levels of national, ethnic and religious diversity, offered a solution that worked: in the exit surveys for the experiments, only one subject speculated that religion had anything to do with the purposes of the games,<sup>33</sup> and only one Senegalese player out of a total 27 verbally wondered if there was something odd about having other players in the room from his Senegalese language group.

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<sup>31</sup>Note that this bias, if anything, runs against us finding FFF discrimination against SM since SM participants are more moderate in their religious practices.

<sup>32</sup>According to the 1999 French census, the percentage of individuals living in this district who are born in France is 63.5 (against 82.4 for all Paris). A good picture of the diversity in the 19th district is offered in the French film “Entre les murs” (“The Class” in its English-language version) that received the Palme d’Or at the 2008 Cannes Film Festival.

<sup>33</sup>In the exit questionnaire, we asked: “Que pensez-vous que notre équipe aura appris sur vous à travers vos décisions aujourd’hui?” [What do you think our team will have learned about you from the decisions you made today?]

We used a stratified (by population density) but not always fully random recruitment procedure centered on the 21 metro stations of the 19th district. In a fully random protocol, we assigned a weight to each metro station based on the density of the area in which it is located, with the higher density stations getting more cards in our random draw. Each recruitment team drew a metro station for each recruitment day, and then a number from 1 to 10 to determine which passer-by to invite as a game recruit. But because we wanted to ensure a large number of interactions between our SX/SM sample and FFF, we deviated from this protocol to assure ourselves a sufficient number of FFF players. When potential subjects who looked as if they were FFF walked by, recruiters were instructed to ignore the sequence of selection, and to ask them to participate in our experiment. Passers-by who were willing to hear our appeal were told that they could win up to 148 euros for about two and a half hours of game participation,<sup>34</sup> games which were designed to investigate “how people from Ile-de-France [Parisian region] make decisions about money.”

Turn-downs were about 30 percent, introducing some bias that likely leads to an over-representation of individuals favorable to diversity among our sample (relative to a random sample of game participants). Indeed, those individuals who agreed to participate in our experiments were told that they would interact with others from the Ile-de-France region, a region commonly known to be ethnically and religiously diverse. We can test this intuition for FFF players. To do so, we compare the average political ideology of our FFF sample to that of a random sample of rooted French from the 2009 European Social Survey (“ESS” henceforth). We use a question that measures where respondents stand on a left-wing/right-wing scale, capturing a tendency to support social change versus a tendency to preserve traditional values. One’s position on a left wing-right wing scale therefore reveals, among other things, attitudes toward diversity. In order to obtain a comparable group of rooted French respondents in our experiment and in the ESS, we selected a sub-sample of ESS respondents who were born in France and whose parents were born in France. Unfortunately, the ESS does not provide information about the birthplace of the respondents’ grandparents. We thus cannot exclude ESS respondents with one or more grandparents born abroad: our sample of rooted French respondents from the ESS is thus, if anything, more open to diversity than would be a sample of rooted French respondents with four grandparents born in metropolitan France (the definition of FFF for our experimental games). This bias thus runs against us finding any difference between our FFF players and the rooted French re-

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<sup>34</sup>This stands for roughly 8.5 times the hourly minimum wage in France in 2009.

spondents in the ESS, since we hypothesize that the latter are more open to diversity than a random sample of FFF. Table 6 presents the results of a difference of means analysis between our FFF and the ESS rooted French. It shows that our FFF sample is, on average, more left-wing than the random sample of rooted French respondents in the 2009 ESS (significant at the 99% confidence level). These results are confirmed by an OLS analysis reported in Table 7. In this table, the variable “European Social Survey” takes the value 1 if the individual is a respondent in the 2009 ESS and 0 if she is a participant in our 2009 experiment. The coefficient for this variable is always positive and highly significant, whether one controls for the gender (column 2), age (column 3), education (column 4) or household income (column 5) of the individual. We therefore have confirmation that FFF participants in our 2009 experiments are more open to diversity compared to a representative sample of FFF in France that same year. As a consequence, our results suffer from a bias that again leads to an underestimation of anti-Muslim discrimination on the part of FFF.

## 4.2 The 2009 games

The 2009 field experiment comprised two phases: a registration phase, during which we collected demographic and behavioral data that we later used for the composition of the player-sets;<sup>35</sup> and a game phase, during which subjects played a series of experimental games. We supervised eight sessions of games of 10 players each held in a rented private language school in the 19th district in Paris, over the course of two weekends, on Friday evenings after work and on Sunday. Three of the sessions were all male; three of the sessions were all female; and two of the sessions were mixed gender.

When subjects arrived at a game session, they were given a code number. They were then told that since they would be interacting with strangers for the next few hours, interactions would be more personal if they wrote their first names on a label and pasted that label on their chests. All subjects complied without question or concern. The only information players had about each other was therefore their looks, their manners, their dress and their first names. None wore any clothes or jewelry revealing religious affiliation, with the exception of

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<sup>35</sup>At registration, we collected demographic data from participants, potentially priming them about identity issues, and thereby biasing our results. This is unlikely, however, given that at least two weeks separated the registration and game phases. Moreover, as explained in the text, what we told the players about our games and where we held the sessions served to downplay any suggestion that religious identities had any role in our intervention. The success of this strategy was revealed in our exit questionnaires, which asked participants what they thought our team had learned about them throughout the games: only 1 respondent out of a total 80 mentioned religion.

one non-Senegalese player, who wore a headscarf signaling a Muslim identity. After check-in was completed, they were brought to an open room with the other players, given magazines to read, and monitored in a way that discouraged any conversation or interaction.

#### 4.2.1 The sequencing of the games

The session was comprised of five experimental games which were all designed to examine how SM and FFF interact with one another (relative to SX and FFF): (i) a simultaneous trust game; (ii) a speed chatting game; (iii) a voting game; (iv) a dictator game; and (v) a strategic dictator game.<sup>36</sup>

In the following we describe and present evidence from the first of those games, the simultaneous trust game, which was the only game to take place before the socialization of players with one another (via the speed-chatting game). We also briefly refer to the results stemming from the other games (described in Appendix A1) to show that they are consistent with those obtained from the simultaneous trust game.

Note that the sequencing of our games raises a potential concern with contamination effects of previous games on players' behavior during the subsequent games, especially if players learned about other players' game decisions once they were allowed to interact and communicate freely (during the speed-chatting game). Such contamination is highly unlikely however. During our initial presentation of the experiments to the players, we emphasized that all game decisions would remain anonymous and private at all times. Moreover, in our instructions for the speed chatting game, we stressed that players were to get to know – in French “faire connaissance avec” – their speed-chatting partners, meaning that players were instructed to find out information about who their partners were outside of the lab, not what their partners did during the game. Finally, we instructed all players to keep notes of their speed-chatting conversations. In these notes, there is no evidence that game-behavior information was exchanged during the speed-chatting game.

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<sup>36</sup>Throughout the session, and out of sight from the players, monitors kept a full account of all answers and earnings for each player. At the end of the session, as players answered an exit survey, the winnings for each player were placed in sealed envelopes for them to take home. Full protocols (in French, but with English translations) are available upon request. Here we review only what is necessary for interpreting the results presented in the subsequent section. We take this opportunity to thank our six recruiters and monitors for their incredible hard work, intellectual contributions throughout, and dedication to the project: Mathieu Couttenier, Jacinto Cui Escobar, Karine Marazyan, Etienne Smith, Josselin Thuilliez and Séverine Toussaert.

### 4.2.2 The simultaneous trust game

The 2009 simultaneous trust game was the first game participants played in our experimental set-up. In this game, subjects sat quietly in a waiting room (they were supervised such that they could not communicate with one another), and were called to a table in pairs. For each pair, one player was assigned the role of “sender” and the other “receiver”. The pairs were created to ensure that all FFF in a session played the simultaneous trust game twice with each Senegalese player in that session, once for each role. Sender was allotted 3 euros in her account, and could send any amount  $\{0, 1, 2, 3\}$  to receiver (an amount that was known by the players to be tripled) by marking this amount on a sheet that receiver would never see. Receiver simultaneously marked on a sheet the sender would never see what percentage  $\{0, 1/3, 2/3, 1\}$ <sup>37</sup> of the amount received would be sent back to the sender.<sup>38</sup> After each play, the senders and the receivers returned to the waiting room, not knowing if they would be called again, or in what role.

The amount sent by the sender in the trust game is commonly considered by experimental economists as a sign of trust that Cox (2004) defines as being “inherently a matter of the beliefs that one agent has about the behavior of another” (Cox (2004): 263). In other words, the amount sent by the sender in the trust game captures the sender’s belief that the receiver will be generous to her. However, the amount sent by the sender has also been shown to capture unconditional altruism, that is the sender’s willingness to be generous to the receiver irrespective of what the receiver does (Fershtman and Gneezy (2001), Camerer (2003), Cox (2004) and Ashraf, Bohnet and Piankov (2006)).<sup>39</sup> As for the amount sent back by the receiver in the simultaneous trust game, it is most plausibly interpreted as a signal

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<sup>37</sup>Note that the equal split was removed from the choice of fractions the receiver could return. This was done in order to prevent this option from becoming the “focal point”, as it usually does (Schelling (1960)).

<sup>38</sup>The novelty of our simultaneous trust game with respect to the original trust game introduced by Berg, Dickhaut and McCabe (1995) is in the simultaneity of the decisions made by the sender and by the receiver. We preferred the simultaneous trust game over the original trust game for several reasons. Our objective was to treat each trust game played by our subjects as a one-shot game in order to mimic everyday life random encounters between strangers. It was therefore critical to avoid any reputation effect that would have occurred if receivers learned how much particular senders had sent in previous games. This procedure also brings a touch of realism since most interactions in real life happen under incomplete information. In this respect, removing sequentiality in the decision process looks less artificial. Furthermore, since our protocol introduced a socialization phase after the simultaneous trust game, in which players would get to know each other, we did not want their conversations to be biased by knowledge of their partners’ actions during the simultaneous trust game.

<sup>39</sup>A third possible confound of positive transfers by the sender in the trust game is risk aversion. Yet, risk aversion hasn’t been shown to be a serious confounding factor. For instance, Eckel and Wilson (2004) do not find behavioral risk measures to be significantly correlated with the decision to send in the trust game. They conclude that “subjects do not see trust as a problem of risk” (Eckel and Wilson (2004): 464).

of unconditional altruism and/or belief-based reciprocal altruism (i.e., an altruistic behavior based on the receiver’s belief that the sender is being kind to her, keeping in mind that the actions of the sender and of the receiver are simultaneous).<sup>40</sup>

Put differently, the simultaneous trust game has the advantage of capturing the two common types of discrimination, taste-based and statistical discrimination, on the side of both the sender and the receiver. More precisely, differences in unconditional altruism by the sender and/or the receiver should reveal taste-based discrimination. According to Becker (1957), taste-based discrimination indeed results from the “special disutility” which a player attaches to contact with another player (see Arrow (1998)). By contrast, differences in trust on the side of the sender and/or differences in belief-based reciprocal altruism on the side of the receiver should reveal statistical discrimination. Following Arrow (1972), statistical discrimination would indeed result from the negative belief which a player holds about the ability of another player to be kind to her.<sup>41</sup> Although our simultaneous trust game, in itself, cannot distinguish between taste-based *versus* statistical discrimination, we exploit information from our other games to identify which one is at stake in our players’ decisions.

### 4.3 Disentangling FFF response to SM Muslimness from FFF response to SM foreignness

Since SX and SM players were indistinguishable to FFF players in terms of dress and appearance, the only observable signals differentiating our Senegalese players were their first names, which were written on a label pasted on their chests. The names of our SM and SX players are listed in Table 8. As should be apparent, all the SX had names that are from the Christian Bible (and which are common French names), but none of the Muslim players did. From the point of view of the FFF, therefore, the SX had *French* names. However, the SM all had *foreign* names, some of them sounding *Muslim*, others sounding more *African*. This raises a question: did the first names of the SM and SX players adequately signal their religious affiliation, or might they have signaled something else, such as foreignness? It is critical to test whether FFF behavior toward SM is a response to SM Muslimness or to SM foreignness.

To distinguish between these two possibilities, we recruited 50 FFF players from the 19th

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<sup>40</sup>See Trivers (1971) on the role that reciprocal altruism plays in cooperation.

<sup>41</sup>Originally, Arrow introduced statistical discrimination to account for employers discriminating racially as soon as they believe that the unobserved determinants of performance are correlated with race, which is observable (Arrow (1998): 96).

district in 2010 to participate, among other things, in a field experiment asking subjects to guess the ethnic and religious affiliations of names. We contracted the professional survey firm CSA to recruit respondents with addresses in the 19th district, and they did so relying on the phone directory. The sample was non-random, since it depended on the agreement of individuals who were called to participate in the experiment, but through quotas on neighborhood (*quartier*), gender, and age we guarded against systematic bias with respect to critical observable characteristics.<sup>42</sup> Respondents were invited to register if and only if they reported that all four grandparents were born within France’s continental boundaries, thereby qualifying as rooted French. The average age of players was 40, ranging from 20 to 59. Twenty-seven were female, and twenty-three were male. The games took place in an office building in the nearby 18th district, and were administered by computer, in groups of five. Each player sat in front of a computer without interacting with any of the other four players who were all sitting in front of their monitors.

The 50 FFF participants in our 2010 experiments played a Names Game allowing us to address whether the FFF in our 2009 experiments were responding more to the religion of their fellow players’ first names or to their foreignness. FFF players were presented, sequentially, a series of names among which the names of our 2009 SM and SX players. For purposes of expediency, a random half of FFF players were shown half of SM and SX players’ first names; the other half were shown the rest. For each name, FFF players were first asked to guess the religious heritage associated with that first name (Christian, Muslim, Buddhist, Jewish, Hindu, Animist). They were then asked to guess the region of origin associated with that first name (North America, Latin America and the Caribbean, North Africa and the Middle East, sub-Saharan Africa, Europe, Asia). Figure 1 illustrates a sample screenshot of the Names Game. The Names Game allowed us to compute, for each SM first name, the percentage of FFF who identified it as a Muslim first name. Based on this information, we created two subgroups among SM: SMM (“Senegalese Muslims with Muslim names”) were those whose first names were guessed as “Muslim” by more than 50% of the FFF who had to guess their religious heritage; SMA (“Senegalese Muslims with African names”) were the remaining SM. Table 9 classifies our 2009 SM players as SMM or SMA according to our 2010

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<sup>42</sup>Recall that we find that our sample of rooted French players in 2009 is more left-wing in political ideology than is the ESS sample of rooted French, suggesting that our sample is more open to diversity than the average rooted French. We do not have a 2010 ESS to conduct such an analysis for our 2010 sample of rooted French players. However, our 2010 sample of rooted French players was recruited from the same district as our 2009 sample, and was presented the games in the exact same manner. It is therefore likely that the direction of the bias in 2010 is the same as the one we found in 2009.

FFF players' guesses.

## 5 Are SM and FFF locked in a sub-optimal equilibrium?

In the following, we first show that our games reveal a pattern – viz. SM are less cooperative than are SX throughout our experimental games – that is consistent with the lower assimilation levels we have identified for SM (relative to SX) in our survey. We then demonstrate that this lower assimilation (and its persistence, as documented in our survey data) is consistent with Muslims and rooted French being locked in a sub-optimal equilibrium whereby: (i) rooted French exhibit taste-based discrimination against those they are able to identify as Muslims (due to the fact that these Muslims keep recognizable Muslim first names instead of adopting French-sounding names); (ii) Muslims perceive French institutions as systematically discriminatory against them (and therefore assimilate less, many retaining Muslim first names).

### 5.1 Experimental evidence of assimilation patterns among SM and SX

Our survey results clearly indicate that SM are more attached to their country of origin and less attached to the host culture and society than are SX in France, this difference persisting over time. If our games are consistent with this pattern, we expect SM players to be less cooperative toward their game partners in France than are SX (they are not in a generous framework of mind in a French environment, and certainly less so than SX).

To test this implication, we rely on the 2009 simultaneous trust game to estimate Equation (3):

$$y = a + b.(FFF \rightarrow SM) + c.(SX \rightarrow All) + d.(SM \rightarrow All) + \mathbf{e}' \cdot \mathbf{X} + \mathbf{f}' \cdot \mathbf{Z} + \mathbf{g}' \cdot \mathbf{\Pi} + \epsilon. \quad (3)$$

The dependent variable  $y$  refers to the amount sent by the sender to the receiver if we focus on the sender's behavior, and to the amount sent back by the receiver to the sender if we focus on the receiver's behavior. The dummy (FFF  $\rightarrow$  SM) is equal to 1 if player 1 is FFF and player 2 is SM and to 0 otherwise.<sup>43</sup> The dummy (SM  $\rightarrow$  All) is equal to 1 if player 1 is

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<sup>43</sup>Player 1 is the sender when we analyze the amount sent and the receiver when we analyze the amount

SM and player 2 is any of the players with which player 1 was matched, and to 0 otherwise. The dummy (SX  $\rightarrow$  All) is equal to 1 if player 1 is SX and player 2 is any of the players with which player 1 was matched, and to 0 otherwise. The reference category is the dummy (FFF  $\rightarrow$  SX) that is equal to 1 if player 1 is FFF and player 2 is SX and to 0 otherwise. Consequently, the difference between coefficients  $d$  and  $c$  captures the difference between the behavior of SM player 1 and the behavior of SX player 1 toward their game partners. Put differently, this difference allows us to test whether SM hold back in their donations as sender or receiver as compared to SX. Moreover, coefficient  $b$  captures the difference between the behavior of FFF player 1 toward SM player 2 and the behavior of FFF player 1 toward SX player 2. We rely on this information when we tackle the next section dedicated to whether FFF players 1 discriminate against SM players 2 (as compared to SX players 2). Equation (3) also controls for the socioeconomic characteristics of players 1 and 2 (gender, age, household income, education, religiosity and whether the player knows players who participated in previous game sessions) that are denoted by  $\mathbf{X}$  and  $\mathbf{Z}$  respectively. Finally, we introduce  $\mathbf{\Pi}$ , a vector of session fixed effects. Note that standard errors are clustered at the player 1 level, since different game decisions by the same player 1 cannot be considered independent of one another.

That SM senders are significantly less generous to all game partners is shown on Table 10. Columns 1, 3, 5 and 7 present OLS estimates from four model specifications of Equation (3), restricting our attention to the amount sent in the simultaneous trust game. In column 1, we control for the ethnic identity of the sender and of the receiver only. In column 3, we add session fixed effects. In column 5, we include the socio-demographic characteristics of the sender and of the receiver. Since this inclusion generates a reduction in the sample size from 178 to 134 observations due to missing values for the income, education and religiosity of some of the senders and receivers, we run a multiple imputation analysis in column 7. The last Wald test at the bottom of Table 10 shows that the difference between coefficient  $d$  (in row (5)) and  $c$  (in row (4)) is significant in the most complete specifications presented in columns 5 and 7.<sup>44</sup>

Results are the same, as revealed in Table 11 (columns 1, 3, 5 and 7), when we restrict our attention to the amount sent back in the simultaneous trust game. Here, with OLS

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sent back. Player 2 is the receiver when we analyze the amount sent and the sender when we analyze the amount sent back. In Equation (3), we not only focus on the behavior of SM and SX toward their game partners, but also on the behavior of FFF toward SM and SX. This is because we rely on Equation (3) in the following section to test whether FFF discriminate against SM in the simultaneous trust game.

<sup>44</sup>We ignore columns 2, 4, 6 and 8 for now, which are analyzed in Section 5.2.1

estimates from four model specifications of Equation (3), controls are introduced stepwise, as in Table 10. Again, since the inclusion of the socio-demographic characteristics of the sender and receiver generates a reduction in the sample size from 166 to 129 observations due to missing values, we run a multiple imputation analysis in column 7. The last Wald test at the bottom of Table 11 again shows that the difference between coefficient  $d$  (in row (5)) and  $c$  (in row (4)) is significant in the most complete specifications presented in columns 5 and 7, showing that SM receivers send back significantly less to their game partners than do SX receivers. In sum, the results from the 2009 simultaneous trust game, revealing that SM are outliers among our 19th district players, are consistent with those of our survey, which indicate that SM are less assimilated in France than are SX.<sup>45</sup>

An alternative interpretation of the results we identify here is that SM hold back more in their monetary decisions than do SX because SM and SX are characterized by different gender norms. More precisely, Adida, Laitin and Valfort (2012a) show that SM men are significantly less generous toward women in general than are SX men, while SM women are significantly less generous toward women of their in-group (SM women) than are SX women toward women of their in-group (SX women). In the robustness check section, we therefore test whether our results on SM lower cooperation levels hold when we exclude cases where player 1 is male and player 2 is female, as well as cases where player 1 and player 2 are both SM or SX females. We find confirmation that gender norms do not drive the results reported here.

## 5.2 Do FFF discriminate against SM and why?

The objective of this section is to determine whether one of the reasons underlying SM lower assimilation patterns relative to SX is that FFF discriminate against SM and, if so, whether FFF anti-Muslim discrimination is taste-based, statistical, or both.

### 5.2.1 Do FFF discriminate against SM?

We analyze the potential discriminatory behavior of our players in the simultaneous trust game by relying on Equation (3) and also Equation (4) which introduces the distinction

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<sup>45</sup>Furthermore, we observe the same pattern in those games that followed the socialization phase (via the speed-chatting game): SM allocate significantly less as leaders in the voting game, one in which elected group leaders allocate distributions both to themselves and to members of their (arbitrarily created) team, than do SX, and SM give significantly less as donors in the subsequent dictator game than do SX (results available upon request).

between SM with recognizable Muslim names (i.e., SMM) and SM without recognizable Muslim names (i.e., SMA):

$$\begin{aligned}
y = & a + b.(FFF \rightarrow SMM) + c.(FFF \rightarrow SMA) \\
& + d.(SX \rightarrow All) + e.(SM \rightarrow All) \\
& + \mathbf{f}' \cdot \mathbf{X} + \mathbf{g}' \cdot \mathbf{Z} + \mathbf{h}' \cdot \mathbf{\Pi} + \epsilon.
\end{aligned} \tag{4}$$

The dummy (FFF  $\rightarrow$  SMM) is equal to 1 if player 1 is FFF and player 2 is SMM and to 0 otherwise. The dummy (FFF  $\rightarrow$  SMA) is equal to 1 if player 1 is FFF and player 2 is SMA and to 0 otherwise. The reference category is again the dummy (FFF  $\rightarrow$  SX) that is equal to 1 if player 1 is FFF and player 2 is SX and to 0 otherwise. As a consequence, coefficient  $b$  captures the difference between the behavior of FFF player 1 toward SMM player 2 and the behavior of FFF player 1 toward SX player 2. In other words, it tells us whether rooted French discriminate against Muslims with recognizable Muslim names relative to otherwise-matched Christians. Coefficient  $c$  captures the difference between the behavior of FFF player 1 toward SMA player 2 and the behavior of FFF player 1 toward SX player 2. In other words, it tells us whether rooted French discriminate against Muslims without recognizable Muslim names relative to otherwise-matched Christians. Put differently, coefficients  $b$  and  $c$  allow us to test whether FFF player 1's discrimination against SM player 2 (if it exists) is a reaction to SM players 2's Muslimness or foreignness. Vectors  $\mathbf{X}$ ,  $\mathbf{Z}$  and  $\mathbf{\Pi}$  are defined as in Equation (3).

Table 10 presents OLS estimates for Equation (3) (Models 1, 3, 5 and 7) and Equation (4) (Models 2, 4, 6 and 8), restricting our attention only to senders. The coefficient in row (1), columns 1, 3, 5, and 7 shows that the amount sent by FFF senders to SM receivers is lower than the amount sent by FFF senders to SX receivers, although never significantly so (see the p-value of the Wald test "(1)=0" at the bottom of Table 10). The coefficients in rows (2) and (3), columns 2, 4, 6, and 8 allow us to extend this conclusion to the cases where we distinguish between SMM and SMA receivers (see the p-value of the Wald test "(2)=0" and "(3)=0" at the bottom of Table 10). The OLS analysis therefore cannot disconfirm the null hypothesis that FFF send equally to SX and SM even those with recognizable Muslim names.

What happens when FFF act as receivers in the simultaneous trust game? Table 11 presents OLS estimates for Equation (3) (Models 1, 3, 5 and 7) and Equation (4) (Models 2,

4, 6 and 8), restricting our attention only to receivers. The coefficient in row (1), columns 1, 3, 5, and 7 shows that the amount sent back by FFF receivers to SM senders is lower (and significantly so in the most complete specifications) than the amount sent back by FFF receivers to SX senders. Moreover, the coefficients in rows (2) and (3), columns 2, 4, 6, and 8 reveal that the significantly lower amount sent back by FFF receivers to SM senders is driven by FFF discrimination against SMM, not by FFF discrimination against SMA (see the p-value of the Wald test “(2)=0” and “(3)=0” at the bottom of Table 11). The OLS analysis therefore uncovers that FFF discriminate against SM, and more precisely against SMM, when FFF are receivers. It is important to stress that the non significant difference between the amounts sent back by FFF receivers to SMA and SX senders is not due to the low number of observations associated with those interactions. A difference of means analysis (not shown, but available upon request) indeed reveals that FFF receivers return *exactly the same* proportion of the amount they receive to SMA and SX senders (i.e., 48% on average). By contrast, FFF receivers return only 33% on average of the amount they receive to SMM senders.<sup>46</sup>

An alternative interpretation of our results is that facial traits drive FFF discrimination against Muslim players. Indeed, in an original trust game, Eckel and Wilson (2006) show that attractive receivers are viewed as more trustworthy: they are trusted at higher rates by the sender and as a consequence receive more from her. In the robustness check section, we therefore test whether FFF anti-Muslim discrimination is robust to controls for the beauty, friendliness and trustworthiness FFF could infer from the facial traits of our 2009 players. We find that our result is not biased by the influence of facial traits.

### 5.2.2 What accounts for FFF anti-Muslim discrimination?

Discrimination of FFF receivers against SM senders in the simultaneous trust game may reflect anti-Muslim taste-based discrimination, that is, lower unconditional altruism toward SM senders (as compared to SX senders). It may also reflect statistical discrimination, that

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<sup>46</sup>The results from the 2009 simultaneous trust game reveal FFF anti-Muslim discrimination. A different pattern is observed, however, in the games following the socialization afforded by the speed-chatting game: FFF voters are not less likely to vote for a SM than for a SX leader, FFF leaders do not allocate less to SM than to SX voters, and FFF dictators do not give less to SM than to SX recipients (results available upon request). Put differently, we find that FFF *a priori* discriminate against SM (and more precisely against those they are able to identify as Muslims) but that they stop doing so after a basic conversation with their SM game partners. Note however that this finding does not hold anymore once the number of SM and SX in the game session varies. More precisely, Adida, Laitin and Valfort (2012b) show that, even after the socialization phase, FFF anti-Muslim discrimination is reactivated when the proportion of SM in the game session increases.

is, lower reciprocal altruism toward SM senders due to FFF more pessimistic beliefs about SM senders being kind to them.

In our follow-up 2010 experiment among 50 FFF players from the 19th district of Paris, we explicitly test the statistical discrimination hypothesis, i.e. whether FFF receivers are more pessimistic about SM senders' donation behavior toward players like them (FFF) in the 2009 simultaneous trust game. To do so, we analyze whether FFF hold different first-order beliefs about SM and SX, that is whether they are more pessimistic about SM *versus* SX unconditional altruism toward FFF. We also examine whether FFF hold different second-order beliefs about SM and SX, that is whether they expect SM beliefs about FFF unconditional altruism toward SM to be more pessimistic than SX beliefs about FFF unconditional altruism toward SX. The 2010 strategic dictator game, described in Appendix A2, allows us to test whether FFF hold different first-order beliefs about SM and about SX. Our results, also reported in Appendix A2, show that FFF guesses about SM unconditional altruism toward FFF recipients do not differ from FFF guesses about SX unconditional altruism toward FFF recipients. To test whether FFF hold different second-order beliefs about SM and SX, we rely on the 2010 double strategic dictator game. This game is described in Appendix A3. Our results, also reported in Appendix A3, show that FFF do not expect SM beliefs about FFF unconditional altruism toward SM to be more pessimistic than SX beliefs about FFF unconditional altruism toward SX. In other words, these results suggest that the difference between the amount sent back by FFF receiver to SM sender and the amount sent back by FFF receiver to SX sender reveals differences in FFF unconditional altruism toward SM and SX, not differences in FFF beliefs about SM and SX behavior.

An alternative interpretation for FFF discrimination of SM in the simultaneous trust game is that it reflects, not taste-based discrimination, but discrimination based on the belief that SX are poorer than SM and therefore need more money. In our 2010 experiment, we explicitly test whether FFF hold different beliefs about the income levels of our 2009 SM and SX players. Our test and results are reported in Appendix A4, and show that FFF expect no difference in the monthly income of SM and SX recipients. We can thus rule out this alternative interpretation.

Overall, our results show that FFF discriminate against Muslims they are able to identify as Muslims.<sup>47</sup> Moreover, our experimental evidence suggests that this discrimination is taste-

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<sup>47</sup>Our finding contradicts the claim by Jacquemet and Yannelis (2012) according to which anti-minority discrimination by the dominant group in Western countries does not reflect discrimination against any specific minority, but rather discrimination against all groups which sound foreign (what they call "ethnic homophily").

based. Note that one may be surprised that rooted French mistakenly believe that SM and SX are equally cooperative. Indeed, their everyday real-world interactions with SM and SX should allow them to update their beliefs based on what they observe. However, this presupposes that FFF are actually interacting with SM: this would require us to believe that interactions between FFF and SM are sufficiently frequent to permit updating, an assumption belied by the levels of social isolation faced by most immigrant communities in France.<sup>48</sup>

### **5.3 Do SM distrust their hosts more than do SX?**

We have shown that FFF discriminate against Muslims they identify as such. We now ask whether Muslims distrust their hosts, that is rooted French and French institutions, more than do SX (i.e., whether SM beliefs about rooted French and French institutions attitudes toward SM are more negative than SX beliefs about rooted French and French institutions attitudes toward SX). If so, their non-assimilation can be best understood as part of an equilibrium. To address this question, we turn to the 2009 strategic dictator game<sup>49</sup> and then the CSA survey to measure SM (relative to SX) distrust toward rooted French and French institutions respectively.

#### **5.3.1 Do SM distrust rooted French more than do SX? Results from the 2009 strategic dictator game**

The strategic dictator game (see Appendix A1 for the protocol) helps us to determine the beliefs of our 2009 players about FFF unconditional altruism toward the various recipients in the 2009 dictator game. Namely, our analysis of this game – in which players are rewarded for correctly guessing the actual donations in the dictator game of an FFF player, to SM and SX faces – allows us to test whether (i) SM distrust FFF more than do SX, meaning that SM expectations about FFF unconditional altruism toward SM are significantly lower than SX expectations about FFF unconditional altruism toward SX; (ii) SM expect FFF to

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<sup>48</sup>See Algan, Héméte and Laitin (2012) who show that even in the HLM sector where immigrant communities and rooted French are living proximate to each other, housing surveys show very low levels of social interaction between them.

<sup>49</sup>Note that relying on this game runs against us finding any difference between SM and SX beliefs about FFF behavior toward SM and SX respectively. As already mentioned, the 2009 strategic dictator game and its companion, the 2009 dictator game, took place after the speed-chatting game, once we can no longer identify anti-Muslim discrimination on the part of FFF. Yet, our results show that this phenomenon is not anticipated (or fully anticipated at least) by Muslims since the 2009 strategic dictator game reveals differences between SM and SX beliefs about FFF behavior toward SM and SX respectively.

be less generous toward SM than toward SX (i.e., to discriminate against SM).

We test both hypotheses by estimating Equation (5) over a set of triads composed of SM or SX guessers, FFF dictators and SM or SX recipients:

$$y = a + b.(SM \rightsquigarrow FFF \rightarrow SM) + c.(SM \rightsquigarrow FFF \rightarrow SX) + \mathbf{d}'\mathbf{X} + e.Face + \mathbf{f}'\mathbf{\Pi} + \epsilon, \quad (5)$$

where  $y$  refers to the guesses about FFF dictators' donations. The dummy (SM  $\rightsquigarrow$  FFF  $\rightarrow$  SM) is equal to 1 if the guesser is SM and the recipient is SM and to 0 otherwise. The dummy (SM  $\rightsquigarrow$  FFF  $\rightarrow$  SX) is equal to 1 if the guesser is SM and the recipient is SX and to 0 otherwise. The reference category is the dummy (SX  $\rightsquigarrow$  FFF  $\rightarrow$  SX) that is equal to 1 if the guesser is SX and the recipient is SX and to 0 otherwise. As a consequence, coefficient  $b$  captures the difference between SM expectations about FFF dictators' donations to SM recipients and SX expectations about FFF dictators' donations to SX recipients. In other words, coefficient  $b$  allows us to test whether SM distrust rooted French more than do SX (i.e., whether SM beliefs about FFF unconditional altruism toward SM is lower than SX beliefs about FFF unconditional altruism toward SX). Moreover, the difference between coefficient  $b$  and coefficient  $c$  captures the difference between SM expectations about FFF dictator donations to SM recipients and SM expectations about FFF dictator donations to SX recipients. In other words, this difference allows us to test whether SM expect FFF anti-Muslim discrimination, that is whether SM expect FFF to be less generous toward SM than toward SX.  $\mathbf{X}$  is a vector of control for a series of socioeconomic characteristics of the guesser (gender, age, household income, education, religiosity and whether the player knows players who participated in previous game sessions). Additionally, in order to run a within-face analysis, we introduce the Face dummy that is equal to 1 if the recipient is the Senegalese woman (and 0 if the recipient is the Senegalese man). Finally, we introduce  $\mathbf{\Pi}$ , a vector of session fixed effects. Note that standard errors are clustered at the guesser level since guesses from the same guesser cannot be considered independent of one another.

Table 12 presents OLS estimates from four model specifications of Equation (5). In column 1, we control for the ethnic identity of the guesser and of the recipient only. In column 2, we add recipient face fixed effects as well as session fixed effects. In column 3, we include the socio-demographic characteristics of the guesser. Since this inclusion generates a reduction in the sample size from 41 to 34 observations due to missing values, we run a multiple imputation analysis in column 4.

The coefficient in row (1) in columns 1, 2, and 3 is negative and significant at least

at the 90% confidence level, confirming that SM expectations about FFF unconditional altruism toward SM are significantly lower than SX expectations about FFF unconditional altruism toward SX.<sup>50</sup> In other words, our results reveal that SM distrust FFF more than do SX. However, the last Wald test at the bottom of Table 12 (which is never significant in all four columns) shows that SM higher distrust toward FFF is not accompanied by SM expectations of FFF discrimination against them. More precisely, SM do not expect FFF to be less generous toward SM than toward SX. They simply expect, more than do SX, lower FFF unconditional altruism toward both SM and SX.

This last result is consistent with the lessons we were able to draw from ethnographic interviews for our project. These interviews were conducted in 2009, and covered the assimilation patterns of 19 SM and 22 SX in the greater Paris region (Ile-de-France), Lyon, Nantes, and Bordeaux.<sup>51</sup> Although SM respondents were more likely to report a sense of being unwanted in France as compared to SX respondents, only one of the SM respondents considered religion as the reason for such discrimination. By contrast, race was highlighted by a majority of SM, as well as by a majority of SX, as the reason underlying discrimination in France.

One should note that the difficulty of SM to figure out on which ground they are discriminated against by FFF is easily understandable: as already emphasized when we motivated our identification strategy, research on discrimination itself has so far been unable to disentangle a religious effect from other possible confounds such as race. However, if SM do not manage to clearly identify the cause of FFF discrimination in face-to-face interactions, one expects them to show better ability in correctly updating their beliefs when FFF behavior is mediated by French institutions (labor market, schooling system, administration ... etc). Two non mutually exclusive explanations could account for this discrepancy in SM ability to detect FFF discrimination. First, FFF are likely to avoid interpersonal interactions with Muslims, precisely because, as we have shown, they attach disutility (distaste) to contact with Muslims: Muslims therefore lack opportunities to correctly update their beliefs. Sec-

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<sup>50</sup>Although this result holds both in a difference of means analysis (not shown here) and in the first three columns of Table 12, it loses significance in column 4 when the multiple imputation analysis is run (but the p-value of 0.16 associated with the coefficient in row (1) is close to statistical significance). This weakening of the significance is likely due to the fact that multiple imputation typically generates high standard errors when the number of observations is low (Equation (6) is estimated on 41 observations only).

<sup>51</sup>The project employed two ethnographers to run these interviews: Etienne Smith (then a Ph.D. candidate in political science at Sciences-Po, who had conducted extensive field research in Senegal, and speaks Wolof, the *lingua franca* of Senegal, a language spoken by nearly all of our respondents) and Mahnaz Shirali (a Ph.D. in Sociology at the Ecole des Hautes Etudes en Sciences Sociales who has published extensively on Muslim youth and gender in France and Iran).

ond, FFF may be susceptible to acting in a socially desirable way in a context where their actions are observable (which is not the case in our field experiment, where all player decisions were anonymous and private). By contrast, FFF cannot avoid dealing with Muslims – and thus discriminating against them – through French institutions. This is all the more true since, behind the veil of institutions, FFF individual actions are not observable, and thus not prone to social desirability bias. The following section puts this intuition to test.

### 5.3.2 Do SM distrust French institutions more than do SX? Results from the CSA survey

Seven questions in the CSA survey allow us to capture the respondent’s distrust toward French institutions, and specifically (i) the schooling system (question Q72A), (ii) the police (question Q72B), (iii) the parliament (question Q72C), (iv) the administration (question Q72D), (v) the judicial system (question Q72E), (vi) the trade unions (question Q72F) and (vii) private firms (question Q72G). We analyze SM and SX answers to those questions by estimating Equation (1). Results are reported in Table 13. We observe that the coefficient of the dummy SM is always positive. Moreover, with the exception of column 2 (distrust toward the police), it is always significant at least at the 95% confidence level. These findings clearly indicate that distrust toward French institutions is significantly higher among SM than among SX respondents, despite the fact that survey questions are prone to elicit socially desirable answers.<sup>52</sup> These results are fully consistent with those stemming from the 2009 strategic dictator game according to which SM distrust FFF more than do SX.

Does the CSA survey allow us to go one step further by showing that SM expect French institutions to be more discriminatory toward SM than toward SX (a result that did not emerge among the face-to-face interactions of the 2009 strategic dictator game)? Six questions in the CSA survey measure whether the respondent considers that the following French institutions treat individuals on an equal basis: the police (question Q94A), the immigration authorities (question Q94B), the prefecture (question Q94C), the judicial system (question Q94D), the schooling system (question Q94E), and the Pôle Emploi - the French national employment agency - (question Q94F). Results are reported in Table 14. We observe that the coefficient of the dummy SM is always negative and significant: SM are less likely than

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<sup>52</sup>The significance level for the dummy SM does not change if we impute missing data, with the exception of column (3) (i.e., distrust toward the parliament) and column (5) (i.e., distrust toward the judicial system) where the dummy SM loses significance (results available upon request).

SX to agree that these various French institutions treat individuals on an equal basis.<sup>53</sup>

Overall, our findings reveal that SM distrust their hosts (both rooted French and French institutions) more than do SX but that they perceive to be specifically discriminated against due to their religion only when they deal with French institutions. Combined with our result that rooted French exhibit taste-based discrimination against those they are able to identify as Muslims, these findings reveal a discriminatory equilibrium between rooted French and Muslims. Muslims, who perceive discrimination as institutionalized, are indeed reluctant to assimilate and rooted French, who are able to identify Muslims as such due to their lower assimilation, reveal their distaste for Muslims by acting less altruistically towards them.

## 6 Robustness checks

Three factors could challenge our results. First, in the CSA survey, the initial migrants to France from respondents' families may systematically differ in terms of assimilation upon arrival in France, depending on whether they arrived earlier (before 1970), or later (after 1970). If this is the case, then the conclusion that SM lower assimilation and SX higher assimilation follow parallel trends over time (they do not converge) may not only capture the impact of the time spent in France on SM and SX assimilation, but also the fact that the initial level of assimilation upon arrival to France differs across these two groups, depending on whether the first migrants in those groups settled earlier or later in France. To ensure that this bias is not at work, it is therefore necessary to confirm that the gap between the assimilation of the first migrants who arrived earlier and those who arrived later does not differ across SM and SX families. Second, one may worry that SM lower cooperation toward their game partners merely captures the fact that SM and SX are characterized by different gender norms. Recall that Adida, Laitin and Valfort (2012a) show that SM men are significantly less generous toward women in general than are SX men, while SM women are significantly less generous toward women of their in-group than are SX women. We therefore need to test whether our results hold when we exclude cases where the dictator is male and the recipient is female, as well as cases where the dictator and the recipient are both SM or SX females. Third, our result that FFF receivers discriminate against SM senders in the simultaneous trust game may be biased by the influence of facial traits. We must therefore

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<sup>53</sup>The significance level for the dummy SM does not change if we impute missing data, with the exception of column (1) (i.e., agreement with the fact that the police treats individuals on an equal basis) and column (2) (i.e., agreement with the fact that immigration authorities treat individuals on an equal basis) where the dummy SM loses significance (results available upon request).

test whether this result is robust to controls for the beauty, friendliness and trustworthiness FFF could infer from the facial traits of our 2009 players.

## 6.1 Do the first migrants who arrived earlier and those who arrived later systematically differ in terms of assimilation across SM and SX families?

To measure the assimilation of the first migrant to France, we focus on respondents' answers to three questions in the CSA survey: (i) whether the first male migrant married a non-French (African) woman (question Q25); (ii) whether the first migrant married someone of the same religion (question Q31); (iii) whether all the parents and grandparents of the respondent married someone of African background (question Q34). In the following, we first investigate whether the results obtained based on these questions are consistent with our finding according to which SM show, on average, lower assimilation than do SX. We then tackle the critical issue of whether SM and SX first migrants systematically differ in terms of assimilation upon arrival in France, depending on whether they arrived earlier (before 1970), or later (after 1970).

Table 15, models (1), (3) and (5) test Equation (1) applied to the three survey measures above. The positive and significant coefficient of the dummy SM in all three columns confirms that SM first migrants are significantly more attached to their continent of origin and significantly less secularized than are SX first migrants, holding their time of arrival at its average.<sup>54</sup> These results are fully consistent with our finding according to which SM show, on average, lower assimilation than do SX.

Does the gap between the assimilation of the first migrants who arrived earlier and those who arrived later differ across SM and SX families? Table 15, models (2), (4) and (6) estimate Equation (2) applied to the three survey measures above. The coefficient of the interaction term SM.Time is never significant, indicating that the difference in assimilation of first migrants who arrived before and after 1970 is the same across SM and SX families.<sup>55</sup> Our main survey-based result according to which SM lower assimilation and SX higher assimilation follow parallel trends over time is therefore only due to the impact of the time spent in France, not to the additional impact of differences between first migrants who settled before *versus* after 1970.

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<sup>54</sup>These results hold if we run a multiple imputation analysis.

<sup>55</sup>These results hold if we run a multiple imputation analysis.

## **6.2 Does SM lower cooperation toward their game partners simply reflect SM gender norms?**

Adida, Laitin and Valfort (2012a) show that SM men are significantly less generous toward women in general than are SX men, while SM women are significantly less generous toward women of their in-group than are SX women. We therefore need to test whether SM lower cooperation toward their game partners hold when we exclude cases where the dictator is male and the recipient is female, as well as cases where the dictator and the recipient are both SM or SX females. Our results (not shown, but available upon request) confirm that SM cooperate significantly less in the 2009 simultaneous trust game (although we lose significance regarding the amount sent back), voting game and dictator game when such cases are excluded. Put differently, SM lower cooperation toward their game partners is not driven by the fact that SM and SX gender norms differ.

## **6.3 Is FFF behavior in the simultaneous trust game robust to controlling for the beauty, friendliness and trustworthiness of their game partners?**

To control for the influence of facial traits in the simultaneous trust game, we asked FFF participants in our 2010 experiments to evaluate the beauty, friendliness and trustworthiness of our 2009 players, by examining pictures of those players. More precisely, in the Beauty game, FFF players were shown, sequentially, a series of photographs of our Senegalese and FFF participants in our 2009 experiments. A random half of the 2010 FFF players were shown half of our 2009 Senegalese and FFF players; the other random half were shown the other half of our 2009 Senegalese and FFF players. For each photograph, FFF players were asked to choose, for each of 3 pairs of adjectives (pretty/ugly; friendly/unfriendly; trustworthy/untrustworthy) which one best corresponded to the photographed player. Six options were available for each pair. For instance, for the pair (friendly/unfriendly), the player could select: “very friendly”, “friendly”, “somewhat friendly”, “somewhat unfriendly”, “unfriendly”, “very unfriendly”. Figure 2 illustrates a sample screenshot of the 2010 Beauty game.

We assign to each Senegalese and FFF players from our 2009 experiments the average beauty, friendliness and trustworthiness scores assigned to them by our 2010 FFF players. We add these controls in our OLS estimation of Equation (3) and Equation (4) for the

amount sent back by the receiver.

Table 16 reports the OLS estimates with imputation of missing values (note that the controls for the facial traits of the 2009 SM, SX and FFF players do not have any missing values). The significant negative coefficient of the dummy (FFF  $\rightarrow$  SM) in column 1 confirms that FFF receivers send back significantly less to SM senders than to SX senders, even when we control for the facial traits of the sender and of the receiver. Moreover, the significant coefficient of the dummy (FFF  $\rightarrow$  SMM) and the non significant coefficient of the dummy (FFF  $\rightarrow$  SMA) in column 2, indicate that this result holds only for SM recipients with recognizable Muslim names (SMM).

## 7 Conclusion

This paper relies on a unique identification strategy that allows us, first, to compare the assimilation patterns, on average and over time, of Muslim and Christian immigrants in France and, second, to identify the mechanism driving those differences. Survey-based results reveal that Muslim immigrants show significantly lower assimilation (i.e., higher attachment to their culture of origin and lower identification with the host culture and society) than do their Christian counterparts and that this difference persists regardless of the time immigrants spend in France. Experimental results reveal that the persistence of Muslims' lower assimilation is consistent with Muslims and rooted French being locked in an equilibrium whereby: (i) rooted French exhibit taste-based discrimination against those they are able to identify as Muslims (due to the fact for instance that these Muslims keep recognizable Muslim first names instead of adopting French-sounding names) and (ii) Muslims perceive French institutions as systematically discriminatory against them. This equilibrium is sustained because Muslims, perceiving discrimination as institutionalized, are reluctant to assimilate and rooted French, who are able to identify Muslims as Muslims due to their lower assimilation, reveal their distaste for Muslims by acting less altruistically toward them.

Our finding that rooted French and SM are locked in a sub-optimal equilibrium offers a potential explanation for the economic handicap faced by Muslims in France today<sup>56</sup> and highlights the need for an equilibrium shift. Indeed, taste-based discrimination against

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<sup>56</sup>Adida, Laitin and Valfort (2010) identify that Senegalese Muslim households in France earn, on average, 400 euros less than their Christian counterparts each month (the equivalent of 14% of the average monthly household income for France in 2009). See Constant and Zimmermann (2008) and Bisin, Pattachini, Verdier and Zenou (2011b) for further evidence on the relationship between low assimilation and poor economic performance in Europe.

Muslims has both direct and indirect negative effects on their prospects of economic success in France. As for the direct effect, taste-based discrimination should lead Muslims to perform worse than their non-Muslim counterparts in markets that are critical for successful economic integration of immigrants, such as the labor, housing, or marriage markets.<sup>57</sup> The indirect effect, also highlighted in this paper, consists in triggering off lower assimilation by the discriminated minority. This lower assimilation is expected to further strengthen the direct negative effect of anti-Muslim taste-based discrimination by potentially feeding rooted French statistical discrimination against Muslims.<sup>58</sup>

It is in the nature of equilibria that no party has an incentive to unilaterally change its behavior. This helps explain the ineffectiveness of many prejudice-reducing policies uncovered in Paluck and Green's extensive review of the literature (2009). What follows from our discussion is the necessity to take a two-pronged approach toward discrimination reduction. On the one hand, it would be useful to highlight to the rooted French that their behavior belies their republican ideals. How can this be done? Pope, Price and Wolfers (2011) have recently shown the benefits of broadcasting research findings on discrimination, especially in an institutional environment committed to fair play. These authors refer to the considerable media attention given to a working paper by Price and Wolfers in 2007 (but published in 2010) documenting that personal fouls are relatively more likely to be called against NBA basketball players when they are officiated by an opposite-race refereeing crew. Pope, Price and Wolfers (2011) show that this media coverage durably erased racial bias by referees. Their finding suggests that making public academic research on discrimination, like the one provided in this paper, could bring about meaningful change in religious discriminatory behavior, especially among the French, who aspire in their republican ideology to treat all citizens equally. On the other hand, Muslims can collectively reveal a commitment to assimilate. One route would be to encourage them to do as many aspiring immigrant groups do

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<sup>57</sup>Adida, Laitin and Valfort (2010) confirm that significant anti-Muslim discrimination prevails in the French labor market. They compare the rate of interview callbacks received by two French applicants of Senegalese background showing the same educational and work experience but differing on religion, with a similar experimental design as in Bertrand and Mullainathan (2004). They confirm that the Muslim applicant faces high prejudice in France in 2009: she is 2.5 times less likely to receive a callback for an interview than is her Christian counterpart.

<sup>58</sup>Our experimental results clearly show that rooted French players do not expect SM to be less cooperative than SX. However, rooted French more exposed to contact with minorities, like recruiters, may hold correct beliefs. Relying on 400 interviews with human resources managers in large French firms, Bouzar and Bouzar (2010) indeed show that H.R. personnel report partly conditioning their hiring decisions (this is at least a *post facto* rationalization of such decisions) on their beliefs about what Muslims will do to the *esprit-de-corps* of their work teams. Perception of Muslims' higher attachment to their religion and culture of origin is listed among the factors underlying their preferences for non-Muslims over Muslims.

around the world, that is, to give French-sounding first names to their children. While the rooted French (if distaste remains) are then likely to seek other clues for Muslim identity, this might serve the Muslim community well as a transitional tactic to induce an equilibrium shift. When it comes to social norms, equilibria shift are not trivial to induce (see Mackie (1996)); but this paper suggests that this is the challenge France faces in light of a harmful and potentially dangerous discriminatory equilibrium.

## References

- [1] Adida, Claire L., David D. Laitin, and Marie-Anne Valfort. 2010. “Identifying barriers to Muslim integration in France.” *Proceedings of the National Academy of Sciences*, 107(52): 384-390.
- [2] Adida, Claire L., David D. Laitin and Marie-Anne Valfort. 2012a. “Gender norms, Muslim immigrants, and economic integration in France.” Unpublished manuscript.
- [3] Adida, Claire L., David D. Laitin and Marie-Anne Valfort. 2012b. ““One Muslim is enough!” Evidence from a field experiment in France.” Unpublished manuscript.
- [4] Akerlof, George A. and Rachel E. Kranton. 2000. “Economics and identity.” *Quarterly Journal of Economics*, 115(3): 715-753.
- [5] Aleksynska, Mariya. 2011. “Civic participation of immigrants in Europe: assimilation, origin, and destination country effects.” *European Journal of Political Economy*, 27(3): 566-585.
- [6] Algan, Yann, Camille Hémet and David D. Laitin. 2012. “Diversity and local public goods: a natural experiment with exogenous residential allocation.” Unpublished manuscript.
- [7] Arrow, Kenneth J. 1972. “Some mathematical models of race discrimination in the labor market”, in A.H. Pascal, ed. *Racial discrimination in economic life*, Lexington, Mass.: D.C. Heath, 187-204.
- [8] Arrow, Kenneth J. 1998. “What has Economics to say About Racial Discrimination?” *Journal of Economic Perspectives*, 12(2): 91-100.

- [9] Ashraf, Nava, Iris Bohnet and Nikita Piankov. 2006. “Decomposing Trust and Trustworthiness.” *Experimental Economics*, 9(3): 193-208.
- [10] Austen-Smith, David and Roland G. Fryer. 2005. “An economic analysis of “Acting White”.” *Quarterly Journal of Economics*, 120(2): 551-583.
- [11] Axelrod, Robert. 1984. *The evolution of cooperation*. Basic Books.
- [12] Becker, Gary. 1957. *The economics of discrimination*. Chicago: University of Chicago Press.
- [13] Berg, Joyce, John Dickhaut, and Kevin McCabe. 1995. “Trust, Reciprocity and Social History.” *Games and Economic Behavior*, 10(1): 122-142.
- [14] Bertrand, Marianne and Sendhil Mullainathan. 2004. “Are Emily and Greg more employable than Lakisha and Jamal?” *American Economic Review*, 94(4): 991-1013.
- [15] Bisin, Alberto, Eleonora Patacchini, Thierry A. Verdier and Yves Zenou. 2008. “Are Muslim immigrants different in terms of cultural integration?” *Journal of the European Economic Association*, 6(2-3): 445-456.
- [16] Bisin, Alberto, Eleonora Patacchini, Thierry A. Verdier and Yves Zenou. 2011a. “Errata corrige “Are Muslim immigrants different in terms of cultural integration?”” *Journal of the European Economic Association*, 9(5): 1012-1019.
- [17] Bisin, Alberto, Eleonora Patacchini, Thierry A. Verdier and Yves Zenou. 2011b. “Immigrants and the labour market.” *Economic Policy*, 26(65): 57-92.
- [18] Bisin, Alberto, Eleonora Patacchini, Thierry A. Verdier and Yves Zenou. 2011c. “Formation and persistence of oppositional identities.” *European Economic Review*, 55(8): 1046-1071.
- [19] Bouzar, Dounia and Lylia Bouzar. 2009. *Allah a-t-il sa place dans l’entreprise?* Albin Michel.
- [20] Camerer, Colin F. 2003. *Behavioral game theory*. Princeton: Princeton University Press.
- [21] Constant, Amelie F. and Klaus F. Zimmermann. 2008. “Measuring ethnic identity and its impact on economic behavior.” *Journal of the European Economic Association*, 6(2-3): 424-433.

- [22] Constant, Amelie F., Liliya Gataullina and Klaus F. Zimmermann. 2009. "Ethnosizing immigrants." *Journal of Economic Behavior and Organization*, 69(3): 274-287.
- [23] Cox, James C. 2004. "How to identify trust and reciprocity." *Games and Economic Behavior*, 46(2): 260-281.
- [24] Diop, A.M. 1988. "Stéréotypes et stratégies", in R. Leveau and G. Kepel, ed. *Les Musulmans dans la société française*, Presses de la Fondation Nationale des Sciences Politiques, Paris, 77-98.
- [25] Eckel, Catherine C. and Rick K. Wilson. 2004. "Is trust a risky decision?" *Journal of Economic Behavior and Organization*, 55(4): 447-465.
- [26] Eckel, Catherine C. and Rick K. Wilson. 2006. "Judging a book by its cover: beauty and expectations in the trust game." *Political Research Quarterly*, 59(2): 189-202.
- [27] Eguia, Jon X. 2012. "Discrimination and assimilation." Unpublished manuscript.
- [28] *Entre les Murs*. 2008. Film directed by Laurent Cantet.
- [29] Fang, Hanming and Glenn C. Loury. 2005. "'Dysfunctional identities'" can be rational." *American Economic Review*, 95(2): 104-111.
- [30] Fershtman, Chaim and Uri Gneezy. 2001. "Discrimination in a segmented society: an experimental approach." *Quarterly Journal of Economics*, 116(1): 351-377.
- [31] Fordham, Signithia and John U. Ogbu. 1986. "Black students' school successes: coping with the burden of "Acting White"". *Urban Review*, 18(3): 176-206.
- [32] Fordham, Signithia. 1996. *Blacked out: dilemmas of race, identity and the success at capital high*. University of Chicago Press.
- [33] Fryer, Roland G. 2009. "An empirical analysis of "Acting White"." *Journal of Public Economics*, 94(56): 380-396.
- [34] Gould, Eric D. and Esteban F. Klor. 2012. "The long-run effect of 9/11: terrorism, backlash, and assimilation of Muslim immigrants in the West." Unpublished manuscript.
- [35] Harrison, Glenn W and John A. List. 2004. "Field experiments." *Journal of Economic Literature*, 42(4): 1009-1055.

- [36] Jacquemet, Nicolas and Constantine Yannelis. 2012. "Indiscriminate discrimination: a correspondence test for ethnic homophily in the Chicago Labor Market." Forthcoming in *Labour Economics*.
- [37] Kahneman, Daniel, Jack L. Knetsch, and Richard H. Thaler. 1986. "Fairness and the assumptions of economics." *Journal of Business*, 59(4): 285-300.
- [38] Laitin, David D. 1995. "Marginality: a microperspective." *Rationality and Society*, 7(1): 31-57.
- [39] Mackie, Gerry. 1996. "Ending footbinding and infibulation: a convention account." *American Sociological Review* 61(6): 999-1017.
- [40] Manning, Alan and Sanchari Roy. 2010. "Culture clash or culture club? National identity in Britain." *Economic Journal*, 120(542): F72-F100.
- [41] McWhorter, John H. 2000. *Losing the race: self-sabotage in black America*. Free Press.
- [42] Paluck, Elizabeth Levy and Donald P. Green. 2009. "Prejudice reduction: what works? A critical look at evidence from the field and the laboratory." *Annual Review of Psychology*, 60: 339-367.
- [43] Pope, Devin, Joseph Price and Justin Wolfers. 2011. "Awareness reduces racial bias." Unpublished manuscript.
- [44] Price, Joseph and Justin Wolfers. 2010. "Racial discrimination among NBA referees." *Quarterly Journal of Economics*, 125(4): 1859-1887.
- [45] Schelling, Thomas C. 1960. *The strategy of conflict*. Cambridge, Massachusetts: Harvard University Press.
- [46] Smith, Etienne. 2010. "Des arts de faire société: parentés à plaisanteries et constructions identitaires en Afrique de l'Ouest (Sénégal)." *Doctorat de Science Politique*, Institut d'Etudes Politiques de Paris.
- [47] Trivers, Robert L. 1971. "The evolution of reciprocal altruism." *Quarterly Review of Biology*, 46(1): 35-57.

## Tables and Figures

**Table 1:** Comparing average SM/SX attachment to the country/continent of origin. OLS analysis.

	Dep. var.: Attachment to the country/continent of origin								
	Visit (1)	Remit (2)	Sympathy (3)	Best Friend (4)	Association (5)	Commonalities (6)	Burial (7)	Home (8)	Sick mother (9)
(1) SM	0.106** (0.042)	0.096 (0.060)	0.036 (0.230)	0.187*** (0.064)	0.273*** (0.091)	0.217** (0.108)	0.390*** (0.068)	0.138*** (0.052)	0.092 (0.075)
(2) Time	0.012 (0.031)	-0.056 (0.057)	0.185 (0.222)	0.078 (0.061)	0.064 (0.100)	-0.018 (0.111)	0.014 (0.061)	-0.012 (0.040)	-0.080 (0.073)
(3) Education	0.010 (0.009)	-0.011 (0.016)	0.121** (0.060)	-0.011 (0.017)	-0.008 (0.026)	0.023 (0.029)	0.007 (0.017)	-0.005 (0.013)	-0.023 (0.021)
(4) Female	0.010 (0.031)	-0.025 (0.054)	-0.145 (0.215)	0.069 (0.057)	0.210** (0.083)	-0.060 (0.100)	0.024 (0.058)	0.012 (0.040)	0.098 (0.072)
(5) Age	0.007*** (0.003)	0.023*** (0.005)	-0.015 (0.019)	-0.008* (0.005)	0.014** (0.007)	0.009 (0.009)	-0.002 (0.005)	0.002 (0.003)	0.001 (0.006)
R <sup>2</sup>	0.057	0.092	0.018	0.055	0.147	0.019	0.141	0.035	0.019
Observations	295	295	292	290	127	295	250	295	292

*Notes:* The table reports OLS estimates. The unit of observation is the respondent. The dependent variable in column 1 is a dummy that captures whether the respondent has ever been to Africa. The dependent variable in column 2 is a dummy that captures whether the respondent sends remittances to Africa. The dependent variable in column 3 captures the degree of sympathy of the respondent toward Senegalese living in Senegal. It ranges from 1 to 10 where 1 stands for “low sympathy” and 10 stands for “high sympathy”. The dependent variable in column 4 is a dummy that captures whether the grandparents of the respondent’s best friend originate from Senegal or other African countries. The dependent variable in column 5 is a dummy that captures whether the association the respondent belongs to is related to Senegal or to Africa. The dependent variable in column 6 captures whether the respondent believes she shares much in common with people of the same country of origin as his/her family. It ranges from 1 to 4 where 1 stands for “nothing in common” and 4 stands for “many things in common”. The dependent variable in column 7 is a dummy that captures whether the respondent wants to be buried in Senegal or in Africa. The dependent variable in column 8 is a dummy that captures whether the respondent owns a home in Africa. The dependent variable in column 9 captures whether the respondent disapproves of a Senegalese student who does not renounce a scholarship in a top French university to take care of a sick mother in Senegal. It ranges from 1 to 3 where 1 stands for “approves” and 3 stands for “disapproves”. “SM” takes the value 1 if the respondent is SM and 0 if the respondent is SX. “Time” takes the value 1 if the first migrant in the respondent’s family arrived before 1970 and 0 if she arrived after. “Education” captures the education of the first migrant. It ranges from 1 (no education) to 6 (higher education). “Female” takes the value 1 if the respondent is female and 0 if the respondent is male. “Age” is equal to the age of the respondent. Standard errors are robust. \*, \*\* and \*\*\* indicate significance at the 10, 5 and 1% levels.

**Table 2a:** Comparing average SM/SX identification with the French culture and society. OLS analysis.

	Dep. var.: Identification with the French culture and society						
	Sympathy (1)	No conflict (2)	Best Friend (3)	Left-Right (4)	Commonalities (5)	Burial (6)	Hide father (7)
(1) SM	-0.693*** (0.219)	-0.135** (0.065)	-0.261*** (0.061)	-0.176*** (0.054)	-0.182* (0.106)	-0.361*** (0.068)	-0.223*** (0.072)
(2) Time	-0.264 (0.232)	-0.075 (0.064)	-0.038 (0.055)	0.042 (0.059)	0.032 (0.109)	-0.033 (0.058)	-0.029 (0.065)
(3) Education	0.075 (0.064)	-0.018 (0.017)	-0.001 (0.015)	0.003 (0.015)	0.024 (0.029)	-0.006 (0.016)	0.005 (0.017)
(4) Female	0.064 (0.217)	0.008 (0.060)	-0.072 (0.051)	0.017 (0.055)	-0.126 (0.098)	0.024 (0.055)	-0.043 (0.061)
(5) Age	-0.008 (0.019)	-0.000 (0.005)	0.008* (0.004)	-0.001 (0.005)	0.010 (0.009)	0.002 (0.005)	-0.000 (0.005)
R <sup>2</sup>	0.045	0.023	0.098	0.034	0.028	0.135	0.043
Observations	291	286	290	276	292	250	294

*Notes:* The table reports OLS estimates. The unit of observation is the respondent. The dependent variable in column 1 captures the degree of sympathy of the respondent toward French people. It ranges from 1 to 10 where 1 stands for “low sympathy” and 10 stands for “high sympathy”. The dependent variable in column 2 is a dummy that captures whether the respondent believes immigrants should do whatever possible to avoid conflict with the hosting society. The dependent variable in column 3 is a dummy that captures whether the grandparents of the respondent’s best friend originate from France. The dependent variable in column 4 is a dummy that captures whether the respondent shows political preferences that can be positioned on a typical left-wing/right-wing scale. More precisely, it takes the value 1 if the respondent answers “neither left nor right” and 0 otherwise. The dependent variable in column 5 captures whether the respondent believes she shares much in common with French people. It ranges from 1 to 4 where 1 stands for “nothing in common” and 4 stands for “many things in common”. The dependent variable in column 6 is a dummy that captures whether the respondent wants to be buried in France. The dependent variable in column 7 captures whether the respondent approves of a man of Senegalese origin who hides from his white son’s friends so that they may believe the son is a rooted French. It ranges from 1 to 3 where 1 stands for “disapproves” and 3 stands for “approves”. “SM” takes the value 1 if the respondent is SM and 0 if the respondent is SX. “Time” takes the value 1 if the first migrant in the respondent’s family arrived before 1970 and 0 if she arrived after. “Education” captures the education of the first migrant. It ranges from 1 (no education) to 6 (higher education). “Female” takes the value 1 if the respondent is female and 0 if the respondent is male. “Age” is equal to the age of the respondent. Standard errors are robust. \*, \*\* and \*\*\* indicate significance at the 10, 5 and 1% levels.

**Table 2b:** Comparing average SM/SX secularization. OLS analysis.

	Dep. var.: Secularization					
	God (1)	Exogamy (2)	Sympathy (3)	Best Friend (4)	Association (5)	Commonalities (6)
(1) SM	1.494*** (0.274)	0.182** (0.082)	0.324 (0.225)	0.108* (0.063)	0.051 (0.054)	0.277** (0.112)
(2) Time	-0.014 (0.241)	0.057 (0.078)	0.081 (0.214)	0.075 (0.062)	0.008 (0.072)	-0.067 (0.103)
(3) Education	-0.097 (0.071)	-0.050** (0.023)	0.091 (0.060)	0.001 (0.016)	-0.005 (0.016)	-0.012 (0.027)
(4) Female	0.028 (0.234)	-0.169** (0.075)	-0.090 (0.212)	-0.050 (0.057)	-0.031 (0.056)	-0.145 (0.098)
(5) Age	0.006 (0.018)	-0.001 (0.006)	-0.029* (0.017)	-0.002 (0.005)	0.002 (0.005)	0.006 (0.008)
R <sup>2</sup>	0.114	0.058	0.028	0.020	0.010	0.034
Observations	291	293	291	287	127	291

*Notes:* The table reports OLS estimates. The unit of observation is the respondent. The dependent variable in column 1 captures the importance of god in the respondent's life. It ranges from 1 to 10 where 1 stands for "not at all important" and 10 stands for "extremely important". The dependent variable in column 2 captures whether the respondent would disapprove if his/her child married a religious other. It ranges from 1 to 3 where 1 stands for "would approve" and 3 stands for "would disapprove". The dependent variable in column 3 captures the degree of sympathy of the respondent toward people sharing the same religion. It ranges from 1 to 10 where 1 stands for "low sympathy" and 10 stands for "high sympathy". The dependent variable in column 4 is a dummy that captures whether the respondent's best friend is of the same religion. The dependent variable in column 5 is a dummy that captures whether the association the respondent belongs to is related to religion. The dependent variable in column 6 captures whether the respondent believes she shares much in common with people of the same religion. It ranges from 1 to 4 where 1 stands for "nothing in common" and 4 stands for "many things in common". "SM" takes the value 1 if the respondent is SM and 0 if the respondent is SX. "Time" takes the value 1 if the first migrant in the respondent's family arrived before 1970 and 0 if she arrived after. "Education" captures the education of the first migrant. It ranges from 1 (no education) to 6 (higher education). "Female" takes the value 1 if the respondent is female and 0 if the respondent is male. "Age" is equal to the age of the respondent. Standard errors are robust. \*, \*\* and \*\*\* indicate significance at the 10, 5 and 1% levels.

**Table 3:** Comparing the evolution over time of the attachment to the country/continent of origin of SM and SX. OLS analysis.

	Dep. var.: Attachment to the country/continent of origin					
	Visit (1)	Best Friend (2)	Association (3)	Commonalities (4)	Burial (5)	Home (6)
(1) SM	0.118* (0.061)	0.137 (0.090)	0.205 (0.134)	0.146 (0.153)	0.332*** (0.098)	0.053 (0.068)
(2) SM.Time	-0.026 (0.081)	0.103 (0.127)	0.123 (0.184)	0.147 (0.218)	0.116 (0.134)	0.174* (0.101)
(3) Time	0.029 (0.073)	0.007 (0.109)	-0.027 (0.158)	-0.120 (0.187)	-0.068 (0.121)	-0.133 (0.090)
(4) Education	0.010 (0.009)	-0.012 (0.017)	-0.010 (0.026)	0.022 (0.029)	0.006 (0.017)	-0.006 (0.012)
(5) Female	0.010 (0.031)	0.069 (0.057)	0.209** (0.083)	-0.059 (0.100)	0.024 (0.058)	0.013 (0.040)
(6) Age	0.008*** (0.003)	-0.008* (0.005)	0.014* (0.007)	0.009 (0.009)	-0.002 (0.005)	0.001 (0.003)
R <sup>2</sup>	0.058	0.057	0.150	0.020	0.144	0.049
Observations	295	290	127	295	250	295

*Notes:* The table reports OLS estimates. The unit of observation is the respondent. The dependent variable in column 1 is a dummy that captures whether the respondent has ever been to Africa. The dependent variable in column 2 is a dummy that captures whether the grandparents of the respondent's best friend originate from Senegal or other African countries. The dependent variable in column 3 is a dummy that captures whether the association the respondent belongs to is related to Senegal or to Africa. The dependent variable in column 4 captures whether the respondent believes she shares much in common with people of the same country of origin as his/her family. It ranges from 1 to 4 where 1 stands for "nothing in common" and 4 stands for "many things in common". The dependent variable in column 5 is a dummy that captures whether the respondent wants to be buried in Senegal or in Africa. The dependent variable in column 6 is a dummy that captures whether the respondent owns a home in Africa. "SM" takes the value 1 if the respondent is SM and 0 if the respondent is SX. "Time" takes the value 1 if the first migrant in the respondent's family arrived before 1970 and 0 if she arrived after. "Education" captures the education of the first migrant. It ranges from 1 (no education) to 6 (higher education). "Female" takes the value 1 if the respondent is female and 0 if the respondent is male. "Age" is equal to the age of the respondent. Standard errors are robust. \*, \*\* and \*\*\* indicate significance at the 10, 5 and 1% levels.

**Table 4a:** Comparing the evolution over time of the identification with the French culture and society of SM and SX. OLS analysis.

	Dep. var.: Identification with the French culture and society						
	Sympathy (1)	No conflict (2)	Best Friend (3)	Left-Right (4)	Commonalities (5)	Burial (6)	Hide father (7)
(1) SM	-0.661** (0.286)	-0.196** (0.088)	-0.238*** (0.085)	-0.244*** (0.073)	-0.237* (0.135)	-0.335*** (0.096)	-0.219** (0.100)
(2) SM.Time	-0.066 (0.435)	0.130 (0.129)	-0.047 (0.121)	0.136 (0.105)	0.115 (0.210)	-0.052 (0.134)	-0.008 (0.141)
(3) Time	-0.218 (0.335)	-0.165 (0.109)	-0.005 (0.109)	-0.053 (0.084)	-0.048 (0.183)	0.003 (0.121)	-0.023 (0.129)
(4) Education	0.076 (0.064)	-0.019 (0.017)	-0.001 (0.015)	0.003 (0.015)	0.023 (0.029)	-0.005 (0.016)	0.005 (0.017)
(5) Female	0.063 (0.217)	0.010 (0.060)	-0.073 (0.051)	0.017 (0.055)	-0.125 (0.098)	0.024 (0.055)	-0.043 (0.061)
(6) Age	-0.008 (0.019)	-0.000 (0.005)	0.008* (0.004)	-0.002 (0.005)	0.010 (0.009)	0.002 (0.005)	-0.000 (0.005)
R <sup>2</sup>	0.045	0.027	0.098	0.039	0.029	0.135	0.043
Observations	291	286	290	276	292	250	294

*Notes:* The table reports OLS estimates. The unit of observation is the respondent. The dependent variable in column 1 captures the degree of sympathy of the respondent toward French people. It ranges from 1 to 10 where 1 stands for “low sympathy” and 10 stands for “high sympathy”. The dependent variable in column 2 is a dummy that captures whether the respondent believes immigrants should do whatever possible to avoid conflict with the hosting society. The dependent variable in column 3 is a dummy that captures whether the grandparents of the respondent’s best friend originate from France. The dependent variable in column 4 is a dummy that captures whether the respondent shows political preferences that can be positioned on a typical left-wing/right-wing scale. More precisely, it takes the value 1 if the respondent answers “neither left nor right” and 0 otherwise. The dependent variable in column 5 captures whether the respondent believes she shares much in common with French people. It ranges from 1 to 4 where 1 stands for “nothing in common” and 4 stands for “many things in common”. The dependent variable in column 6 is a dummy that captures whether the respondent wants to be buried in France. The dependent variable in column 7 captures whether the respondent approves of a man of Senegalese origin who hides from his white son’s friends so that they may believe the son is a rooted French. It ranges from 1 to 3 where 1 stands for “disapproves” and 3 stands for “approves”. “SM” takes the value 1 if the respondent is SM and 0 if the respondent is SX. “Time” takes the value 1 if the first migrant in the respondent’s family arrived before 1970 and 0 if she arrived after. “Education” captures the education of the first migrant. It ranges from 1 (no education) to 6 (higher education). “Female” takes the value 1 if the respondent is female and 0 if the respondent is male. “Age” is equal to the age of the respondent. Standard errors are robust. \*, \*\* and \*\*\* indicate significance at the 10, 5 and 1% levels.

**Table 4b:** Comparing the evolution over time of SM/SX secularization. OLS analysis.

	Dep. var.: Secularization			
	God (1)	Exogamy (2)	Best Friend (3)	Commonalities (4)
(1) SM	1.126*** (0.374)	0.213* (0.119)	0.078 (0.089)	0.366** (0.154)
(2) SM.Time	0.764 (0.536)	-0.065 (0.158)	0.062 (0.126)	-0.182 (0.220)
(3) Time	-0.543 (0.461)	0.102 (0.130)	0.033 (0.109)	0.059 (0.195)
(4) Education	-0.103 (0.071)	-0.049** (0.023)	0.001 (0.016)	-0.011 (0.027)
(5) Female	0.033 (0.234)	-0.169** (0.075)	-0.049 (0.057)	-0.145 (0.099)
(6) Age	0.004 (0.018)	-0.001 (0.006)	-0.002 (0.005)	0.006 (0.008)
R <sup>2</sup>	0.121	0.058	0.021	0.037
Observations	291	293	287	291

*Notes:* The table reports OLS estimates. The unit of observation is the respondent. The dependent variable in column 1 captures the importance of god in the respondent's life. It ranges from 1 to 10 where 1 stands for "not at all important" and 10 stands for "extremely important". The dependent variable in column 2 captures whether the respondent would disapprove if his/her child married a religious other. It ranges from 1 to 3 where 1 stands for "would approve" and 3 stands for "would disapprove". The dependent variable in column 3 is a dummy that captures whether the respondent's best friend is of the same religion. The dependent variable in column 4 captures whether the respondent believes she shares much in common with people of the same religion. It ranges from 1 to 4 where 1 stands for "nothing in common" and 4 stands for "many things in common". "SM" takes the value 1 if the respondent is SM and 0 if the respondent is SX. "Time" takes the value 1 if the first migrant in the respondent's family arrived before 1970 and 0 if she arrived after. "Education" captures the education of the first migrant. It ranges from 1 (no education) to 6 (higher education). "Female" takes the value 1 if the respondent is female and 0 if the respondent is male. "Age" is equal to the age of the respondent. Standard errors are robust. \*, \*\* and \*\*\* indicate significance at the 10, 5 and 1% levels.

**Table 5:** Socioeconomic characteristics of SM and SX participants in our 2009 experiments. Difference of means analysis.

Variable	SM (a)	SX (b)	Difference (b-a)
Female	0.50 (N=16)	0.55 (N=11)	+0.05 p=0.83
Age	33.19 (N=16)	31.45 (N=11)	-1.74 p=0.59
Education	7.33 (N=15)	7.63 (N=8)	+0.30 p=0.83
Household income	3.79 (N=14)	4.00 (N=9)	+0.21 p=0.85
Religiosity	2.60 (N=15)	4.90 (N=10)	+2.30 p=0.00
Knows players from previous game sessions	0.43 (N=16)	0.36 (N=11)	-0.07 p=0.71

*Notes:* The table reports arithmetic means for the sub-samples of SM and SX players, and two-tailed t-tests assuming unequal variances. “Female” takes the value 1 if the participant is female and 0 otherwise. “Age” is equal to the age of the participant. “Education” ranges from 1 (less than primary school completed) to 10 (higher than college degree completed). “Household income” ranges from 1 (less than 500 euros monthly) to 11 (more than 7,500 euros monthly). “Religiosity” ranges from 1 (never attends religious services) to 7 (attends religious services several times a week). “Knows players from previous sessions” takes the value 1 if the participant knows players who participated in previous game sessions and 0 otherwise.

**Table 6:** Position of “FFF” respondents to the 2009 ESS and of FFF participants in our 2009 experiments on a left wing-right wing scale. Difference of means analysis.

“FFF” respondents to the 2009 ESS (a)	FFF participants in our 2009 experiment (b)	Diff (b-a)
1.94 (N=64)	1.42 (N=19)	-0.52 p=0.01

*Notes:* The table reports a difference of means analysis. The variable of interest captures the position of respondents on a left wing-right wing scale. It ranges from 1 to 3, where 1 means “more leftist than rightist”, 2 means “in-between” and 3 means “more rightist than leftist.”

**Table 7:** Position of “FFF” respondents to the 2009 ESS and of FFF participants in our 2009 experiment on a left wing-right wing scale. OLS analysis.

	Dep. var.: Position on a left wing-right wing scale				
	(1)	(2)	(3)	(4)	(5)
(1) European Social Survey	0.516*** (0.177)	0.522*** (0.176)	0.517*** (0.179)	0.473** (0.191)	0.447** (0.198)
(2) Female		0.063 (0.183)	0.054 (0.202)	0.046 (0.203)	-0.007 (0.211)
(3) Age			0.001 (0.006)	-0.001 (0.006)	0.000 (0.007)
(4) Education				-0.093 (0.105)	-0.050 (0.111)
(5) Household income					-0.130 (0.089)
R <sup>2</sup>	0.065	0.066	0.066	0.074	0.110
Observations	83	83	83	83	75

*Notes:* The table reports OLS estimates. The unit of observation is the respondent. The dependent variable ranges from 1 to 3, where 1 means “more leftist than rightist”, 2 means “in-between” and 3 means “more rightist than leftist.” “European Social Survey” takes the value 1 if the individual is a respondent to the 2009 ESS, and 0 if she is a participant in our 2009 experiments. “Female” takes the value 1 if the individual is female and 0 otherwise. “Age” is equal to the age of the individual. “Education” ranges from 1 (less than lower secondary completed) to 4 (post secondary completed). “Household income” ranges from 1 (first quintile) to 5 (fifth quintile). Standard errors are robust. \*, \*\* and \*\*\* indicate significance at the 10, 5 and 1% levels.

**Table 8:** First names of the 2009 SM and SX players.

First names of SM players	First names of SX players
AMADOU	CECILE
AMIE	CHRISTINE
ASTOU	DANIEL
AWA	EPHIGENIE
CIRE	GASTON
FATOUMATA	HELENE
IBOU	LOUIS
IBRAHIMA	MAMADOU JEAN
KALS	NINA
KHADY	ROBERT ANTOINE
MAMADOU LAMINE	THERESE
MOUSTAPHA	
NDEYE	
OUSMANE	
SIDY	
SIRE	
TAMSIR	
YACINE	

**Figure 1:** Sample screenshot for the 2010 Names Game.

Comportement de Jeux des Habitants de l'Île de France

MOUSTAPHA

Selon vous, quelle est la tradition religieuse de cette personne?

- Chrétienne
- Musulmane
- Bouddhiste
- Juive
- Hindou
- Animiste

Selon vous, de quelle région cette personne est-elle originaire?

- Amérique du Nord
- Amérique Latine et Caraïbes
- Afrique du Nord et Moyen Orient
- Afrique Noire
- Europe
- Asie

**Table 9:** Categorization of 2009 SM players' first names as SMM or SMA by our 2010 FFF players.

First names of SMM players	First names of SMA players
AMADOU	AMIE
AWA	ASTOU
FATOUMATA	CIRE
IBRAHIMA	IBOU
KHADY	KALS
MAMADOU LAMINE	SIDY
MOUSTAPHA	SIRE
NDEYE	TAMSIR
OUSMANE	
YACINE	

**Table 10:** Amount sent by the sender in the 2009 simultaneous trust game. OLS analysis.

	Dep. var.: Amount sent by the sender							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) FFF → SM	-0.071		-0.166		-0.352		-0.232	
(2) FFF → SMM		-0.062		-0.220		-0.543		-0.326
(3) FFF → SMA		-0.083		-0.098		-0.117		-0.108
(4) SX → All	-0.675***	-0.675***	-0.614***	-0.614***	-1.011***	-0.988***	-0.670**	-0.656**
(5) SM → All	-0.801***	-0.801***	-0.853***	-0.855***	-1.437***	-1.443***	-1.071***	-1.066***
<u>SES of the sender</u>								
(6) Female					-0.516	-0.526*	-0.413*	-0.402*
(7) Age					0.001	0.003	0.002	0.003
(8) Household income					0.029	0.033	0.033	0.035
(9) Education					-0.020	-0.024	-0.030	-0.031
(10) Religiosity					-0.058	-0.060	-0.053	-0.055
(11) Knows players from previous sessions					0.824***	0.856***	0.632***	0.641***
<u>SES of the receiver</u>								
(12) Female					-0.038	-0.031	-0.106	-0.113
(13) Age					0.005	0.003	0.004	0.003
(14) Household income					0.026	0.028	0.018	0.020
(15) Education					-0.035	-0.036	-0.030	-0.030
(16) Religiosity					-0.034	-0.034	-0.030	-0.029
(17) Knows players from previous sessions					0.019	0.001	-0.014	-0.024
P-value of the test: (1)=0	0.60		0.26		0.11		0.27	
P-value of the test: (2)=0		0.77		0.37		0.11		0.26
P-value of the test: (3)=0		0.64		0.61		0.62		0.66
P-value of the test: (4)=(5)	0.66	0.66	0.22	0.22	0.02	0.01	0.02	0.02
Session fixed effects	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Multiple Imputation Analysis	No	No	No	No	No	No	Yes	Yes
R <sup>2</sup>	0.117	0.117	0.293	0.294	0.474	0.479	0.382	0.384
Observations	178	178	178	178	134	134	178	178

*Notes:* The table reports OLS estimates. The unit of observation is a dyad formed of FFF and SM or SX players. The dependent variable ranges from 0 (the sender sends nothing to the receiver) to 3 (the sender sends her total endowment to the receiver). “FFF → SM” takes the value 1 if the sender is FFF and the receiver is SM, and 0 otherwise. “FFF → SMM” takes the value 1 if the sender is FFF and the receiver is SMM, and 0 otherwise. “FFF → SMA” takes the value 1 if the sender is FFF and the receiver is SMA, and 0 otherwise. “SM → All” takes the value 1 if the sender is SM and the receiver is any game partner, and 0 otherwise. “SX → All” takes the value 1 if the sender is SX and the receiver is any game partner, and 0 otherwise. The omitted category is the dummy “FFF → SX” that takes the value 1 if the sender is FFF and the receiver is SX, and 0 otherwise. “Female” takes the value 1 if the player is female and 0 otherwise. “Age” is equal to the age of the player. “Education” ranges from 1 (less than primary school completed) to 10 (higher than college degree completed). “Household income” ranges from 1 (less than 500 euros monthly) to 11 (more than 7,500 euros monthly). “Religiosity” ranges from 1 (never attends religious services) to 7 (attends religious services several times a week). “Knows players from previous sessions” takes the value 1 if the player knows players who participated in previous game sessions and 0 otherwise. Standard errors (not reported here due to space constraints) are clustered at the sender level. \*, \*\* and \*\*\* indicate significance at the 10, 5 and 1% levels.

**Table 11:** Amount sent back by the receiver in the 2009 simultaneous trust game. OLS analysis.

	Dep. var.: Amount sent back by the receiver							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) FFF → SM	-0.092*		-0.076		-0.243***		-0.149*	
(2) FFF → SMM		-0.152*		-0.161		-0.331**		-0.251**
(3) FFF → SMA		-0.001		0.052		-0.125		0.022
(4) SX → All	-0.031	-0.031	-0.023	-0.021	-0.076	-0.070	0.032	0.050
(5) SM → All	-0.117	-0.117	-0.097	-0.099	-0.275**	-0.282**	-0.128	-0.121
<u>SES of the receiver</u>								
(6) Female					0.025	0.011	0.115	0.115
(7) Age					0.001	0.002	0.002	0.003
(8) Household income					-0.010	-0.009	-0.004	-0.002
(9) Education					0.016	0.014	-0.003	-0.004
(10) Religiosity					-0.027	-0.027	-0.042	-0.044*
(11) Knows players from previous sessions					0.069	0.081	0.107	0.113
<u>SES of the sender</u>								
(12) Female					-0.093	-0.096	-0.039	-0.049
(13) Age					0.002	0.002	0.001	0.000
(14) Household income					0.006	0.008	0.006	0.008
(15) Education					-0.022	-0.024	-0.027*	-0.028*
(16) Religiosity					-0.044**	-0.044**	-0.033*	-0.031
(17) Knows players from previous sessions					0.152*	0.135	0.084	0.061
P-value of the test: (1)=0	0.08		0.24		0.01		0.07	
P-value of the test: (2)=0		0.06		0.11		0.01		0.02
P-value of the test: (3)=0		0.99		0.56		0.22		0.84
P-value of the test: (4)=(5)	0.37	0.37	0.36	0.34	0.09	0.07	0.10	0.08
Session fixed effects	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Multiple Imputation Analysis	No	No	No	No	No	No	Yes	Yes
R <sup>2</sup>	0.021	0.030	0.128	0.143	0.244	0.257	0.194	0.216
Observations	166	166	166	166	129	129	166	166

*Notes:* The table reports OLS estimates. The unit of observation is a dyad formed of FFF and SM or SX players. The dependent variable ranges from 0 (the receiver sends back nothing to the sender) to 1 (the receiver sends back her total endowment to the sender). “FFF → SM” takes the value 1 if the receiver is FFF and the sender is SM, and 0 otherwise. “FFF → SMM” takes the value 1 if the receiver is FFF and the sender is SMM, and 0 otherwise. “FFF → SMA” takes the value 1 if the receiver is FFF and the sender is SMA, and 0 otherwise. “SM → All” takes the value 1 if the receiver is SM and the sender is any game partner, and 0 otherwise. “SX → FFF” takes the value 1 if the receiver is SX and the sender is any game partner, and 0 otherwise. The omitted category is the dummy “FFF → SX” that takes the value 1 if the receiver is FFF and the sender is SX, and 0 otherwise. “Female” takes the value 1 if the player is female and 0 otherwise. “Age” is equal to the age of the player. “Education” ranges from 1 (less than primary school completed) to 10 (higher than college degree completed). “Household income” ranges from 1 (less than 500 euros monthly) to 11 (more than 7,500 euros monthly). “Religiosity” ranges from 1 (never attends religious services) to 7 (attends religious services several times a week). “Knows players from previous sessions” takes the value 1 if the player knows players who participated in previous game sessions and 0 otherwise. Standard errors (not reported here due to space constraints) are clustered at the receiver level. \*, \*\* and \*\*\* indicate significance at the 10, 5 and 1% levels.

**Table 12:** SM and SX guesses in the 2009 strategic dictator game. OLS analysis.

	Dep. var.: Guesses about dictators' donations			
	(1)	(2)	(3)	(4)
(1) SM $\rightsquigarrow$ FFF $\rightarrow$ SM	-0.636*	-0.678**	-1.062*	-0.729
	(0.368)	(0.326)	(0.552)	(0.497)
(2) SM $\rightsquigarrow$ FFF $\rightarrow$ SX	-0.303	-0.336	-0.765	-0.381
	(0.377)	(0.295)	(0.516)	(0.450)
(3) Female			0.129	0.954
			(0.820)	(0.655)
(4) Age			-0.006	-0.018
			(0.024)	(0.020)
(5) Household income			0.114**	0.091
			(0.051)	(0.054)
(6) Education			-0.057	-0.079
			(0.073)	(0.074)
(7) Religiosity			0.036	-0.085
			(0.126)	(0.089)
(8) Knows players from previous sessions			-0.183	-0.095
			(0.516)	(0.313)
P-value of the test: (1)=0	0.09	0.05	0.07	0.16
P-value of the test: (1)=(2)	0.20	0.24	0.45	0.29
Session fixed effects	No	Yes	Yes	Yes
Recipient face fixed effects	No	Yes	Yes	Yes
Multiple Imputation Analysis	No	No	No	Yes
R <sup>2</sup>	0.072	0.497	0.649	0.623
Observations	41	41	34	41

*Notes:* The table reports OLS estimates. The unit of observation is a triad formed of SM or SX guessers, FFF dictators and SM or SX recipients. The dependent variable ranges from 0 (the guesser guesses that the FFF dictator gives 0 euro to the recipient) to 5 (the guesser guesses that the FFF dictator gives 5 euros to the recipient). “SM  $\rightsquigarrow$  FFF  $\rightarrow$  SM” takes the value 1 if the guesser is SM and the recipient is SM, and 0 otherwise. “SM  $\rightsquigarrow$  FFF  $\rightarrow$  SX” takes the value 1 if the guesser is SM and the recipient is SX, and 0 otherwise. The omitted category is the dummy “SX  $\rightsquigarrow$  FFF  $\rightarrow$  SX” that takes the value 1 if the guesser is SX and the recipient is SX, and 0 otherwise. “Female” takes the value 1 if the guesser is female and 0 otherwise. “Age” is equal to the age of the guesser. “Education” ranges from 1 (less than primary school completed) to 10 (higher than college degree completed). “Household income” ranges from 1 (less than 500 euros monthly) to 11 (more than 7,500 euros monthly). “Religiosity” ranges from 1 (never attends religious services) to 7 (attends religious services several times a week). “Knows players from previous sessions” takes the value 1 if the guesser knows players who participated in previous game sessions and 0 otherwise. Standard errors are clustered at the guesser level. \*, \*\* and \*\*\* indicate significance at the 10, 5 and 1% levels.

**Table 13:** Comparing SM and SX distrust toward French institutions. OLS analysis.

	Dep. var.: Distrust toward French institutions						
	Schooling system (1)	Police (2)	Parliament (3)	Administration (4)	Judicial system (5)	Trade unions (6)	Private firms (7)
(1) SM	0.375*** (0.088)	0.172 (0.123)	0.306** (0.123)	0.413*** (0.104)	0.355*** (0.119)	0.209** (0.106)	0.276** (0.107)
(2) Time	0.210** (0.087)	0.003 (0.121)	0.235** (0.119)	0.234** (0.109)	0.122 (0.116)	0.149 (0.112)	0.242** (0.108)
(3) Education	-0.012 (0.025)	-0.018 (0.033)	-0.030 (0.032)	-0.030 (0.028)	-0.064** (0.031)	-0.006 (0.029)	-0.022 (0.030)
(4) Female	0.092 (0.085)	-0.136 (0.114)	-0.098 (0.112)	-0.013 (0.102)	-0.198* (0.109)	-0.180* (0.106)	-0.037 (0.104)
(5) Age	-0.005 (0.007)	-0.007 (0.010)	0.003 (0.009)	-0.001 (0.008)	-0.002 (0.009)	-0.004 (0.009)	0.015* (0.009)
R <sup>2</sup>	0.083	0.016	0.050	0.074	0.068	0.032	0.065
Observations	295	295	293	295	295	289	291

*Notes:* The table reports OLS estimates. The unit of observation is the respondent. The dependent variables in columns 1, 2, 3, 4, 5, 6 and 7 capture distrust toward the schooling system, the police, the parliament, the administration, the judicial system, the trade unions and private firms respectively. Each dependent variable ranges from 1 to 4 where 1 stands for “fully trusts” and 4 stands for “fully distrusts”. “SM” takes the value 1 if the respondent is SM and 0 if the respondent is SX. “Time” takes the value 1 if the first migrant in the respondent’s family arrived before 1970 and 0 if she arrived after. “Education” captures the education of the first migrant. It ranges from 1 (no education) to 6 (higher education). “Female” takes the value 1 if the respondent is female and 0 if the respondent is male. “Age” is equal to the age of the respondent. Standard errors are robust. \*, \*\* and \*\*\* indicate significance at the 10, 5 and 1% levels.

**Table 14:** Comparing SM and SX agreement with “French institutions treat individuals on an equal basis”. OLS analysis.

	Dep. var.: Agreement with “French institutions treat individuals on an equal basis”					
	Police (1)	Immigration authorities (2)	Prefecture (3)	Judicial system (4)	Schooling system (5)	Pôle Emploi (6)
(1) SM	-0.226*	-0.256**	-0.428***	-0.311***	-0.430***	-0.261**
	(0.124)	(0.130)	(0.136)	(0.118)	(0.111)	(0.126)
(2) Time	0.008	-0.077	-0.076	-0.264**	-0.164	0.067
	(0.120)	(0.128)	(0.140)	(0.127)	(0.119)	(0.133)
(3) Education	0.041	0.013	0.019	0.039	0.059*	0.018
	(0.032)	(0.033)	(0.037)	(0.034)	(0.033)	(0.033)
(4) Female	0.024	-0.219*	-0.148	0.012	-0.079	-0.086
	(0.107)	(0.115)	(0.123)	(0.117)	(0.112)	(0.120)
(5) Age	0.007	0.010	-0.008	0.011	0.004	-0.013
	(0.009)	(0.010)	(0.010)	(0.010)	(0.009)	(0.010)
R <sup>2</sup>	0.024	0.034	0.046	0.050	0.072	0.023
Observations	293	286	289	293	292	274

*Notes:* The table reports OLS estimates. The unit of observation is the respondent. The dependent variables capture whether the respondent considers that the following French institutions treat individuals on an equal basis: the police (column 1), the immigration authorities (column 2), the prefecture (column 3), the judicial system (column 4), the schooling system (column 5), and the Pôle Emploi (column 6). Each dependent variable ranges from 1 to 4 where 1 stands for “fully disagrees” and 4 stands for “fully agrees”. “SM” takes the value 1 if the respondent is SM and 0 if the respondent is SX. “Time” takes the value 1 if the first migrant in the respondent’s family arrived before 1970 and 0 if she arrived after. “Education” captures the education of the first migrant. It ranges from 1 (no education) to 6 (higher education). “Female” takes the value 1 if the respondent is female and 0 if the respondent is male. “Age” is equal to the age of the respondent. Standard errors are robust. \*, \*\* and \*\*\* indicate significance at the 10, 5 and 1% levels.

**Table 15:** Comparing the assimilation in France of SM and SX first migrants. OLS analysis.

	Dep. var.: Assimilation of SM and SX first migrants					
	1st mig. married a non-French (1)	(2)	1st mig. married a co-rel. (3)	(4)	All ancestors married an African (5)	(6)
(1) SM	0.110** (0.045)	0.081 (0.058)	0.091* (0.052)	0.138* (0.073)	0.114** (0.050)	0.153** (0.068)
(2) SM.Time		0.057 (0.091)		-0.098 (0.104)		-0.080 (0.098)
(3) Time	-0.030 (0.032)	-0.070 (0.086)	0.022 (0.044)	0.092 (0.092)	-0.033 (0.040)	0.023 (0.090)
(4) Education	-0.031*** (0.010)	-0.031*** (0.010)	-0.018 (0.013)	-0.017 (0.013)	-0.006 (0.012)	-0.006 (0.012)
(5) Female	0.033 (0.033)	0.033 (0.032)	0.068 (0.045)	0.068 (0.045)	-0.002 (0.040)	-0.002 (0.040)
(6) Age	-0.005** (0.003)	-0.005** (0.003)	-0.006* (0.003)	-0.006* (0.003)	-0.002 (0.003)	-0.002 (0.003)
R <sup>2</sup>	0.112	0.114	0.044	0.047	0.031	0.034
Observations	246	246	279	279	286	286

*Notes:* The table reports OLS estimates. The unit of observation is the respondent. The dependent variable in columns 1 and 2 is a dummy that captures whether the first male migrants married a non-French woman. The dependent variable in columns 3 and 4 is a dummy that captures whether the first migrant married someone of the same religion. The dependent variable in columns 5 and 6 is a dummy that captures whether all the parents and grandparents of the respondent married someone of African background. “SM” takes the value 1 if the respondent is SM and 0 if the respondent is SX. “Time” takes the value 1 if the first migrant in the respondent’s family arrived before 1970 and 0 if she arrived after. “Education” captures the education of the first migrant. It ranges from 1 (no education) to 6 (higher education). “Female” takes the value 1 if the respondent is female and 0 if the respondent is male. “Age” is equal to the age of the respondent. Standard errors are robust. \*, \*\* and \*\*\* indicate significance at the 10, 5 and 1% levels.

**Figure 2:** Sample screenshot of the 2010 Beauty game.



**Table 16:** Amount sent back by the receiver in the 2009 simultaneous trust game, controlling for the beauty, friendliness and trustworthiness of the 2009 SM, SX and FFF players.

	Dep. var.: Amount sent back by the receiver	
	(1)	(2)
(1) FFF → SM	-0.207** (0.097)	
(2) FFF → SMM		-0.298** (0.118)
(3) FFF → SMA		-0.031 (0.126)
(4) SX → All	0.103 (0.131)	0.136 (0.129)
(5) SM → All	-0.136 (0.099)	-0.120 (0.101)
<u>Facial traits of the receiver</u>		
(6) Beauty	-0.009 (0.097)	-0.014 (0.099)
(7) Friendliness	0.088 (0.261)	0.086 (0.250)
(8) Trustworthiness	0.037 (0.231)	0.048 (0.224)
<u>Facial traits of the sender</u>		
(9) Beauty	0.072 (0.080)	0.040 (0.084)
(10) Friendliness	-0.155 (0.241)	-0.170 (0.247)
(11) Trustworthiness	0.091 (0.237)	0.131 (0.246)
P-value of the test: (1)=0	0.04	
P-value of the test: (2)=0		0.02
P-value of the test: (3)=0		0.81
P-value of the test: (4)=(5)	0.04	0.02
Sender/Receiver SES controls	Yes	Yes
Session fixed effects	Yes	Yes
Multiple Imputation Analysis	Yes	Yes
R <sup>2</sup>	0.258	0.280
Observations	141	141

*Notes:* The table reports OLS estimates. The unit of observation is a dyad formed of FFF and SM or SX players. The dependent variable ranges from 0 (the receiver sends back nothing to the sender) to 1 (the receiver sends back her total endowment to the sender). “FFF → SM” takes the value 1 if the receiver is FFF and the sender is SM, and 0 otherwise. “FFF → SMM” takes the value 1 if the receiver is FFF and the sender is SMM, and 0 otherwise. “FFF → SMA” takes the value 1 if the receiver is FFF and the sender is SMA, and 0 otherwise. “SM → All” takes the value 1 if the receiver is SM and the sender is SM, SX or FFF, and 0 otherwise. “SX → FFF” takes the value 1 if the receiver is SX and the sender is SM, SX or FFF, and 0 otherwise. The omitted category is the dummy “FFF → SX” that takes the value 1 if the receiver is FFF and the sender is SX, and 0 otherwise. “Beauty” ranges from 1 to 6 where 1 stands for “very ugly” and 6 stands for “very beautiful”. “Friendliness” ranges from 1 to 6 where 1 stands for “very unfriendly” and 6 stands for “very friendly”. “Trustworthiness” ranges from 1 to 6 where 1 stands for “very untrustworthy” and 6 stands for “very trustworthy”. Controls for the SES of the sender and of the receiver include their gender, age, household income, education, religiosity and whether they know players from previous sessions. Standard errors are clustered at the sender level. \*, \*\* and \*\*\* indicate significance at the 10, 5 and 1% levels.

## Appendix

### Appendix A1: Description of the 2009 speed chatting game, voting game, dictator game and strategic dictator game

#### The 2009 speed chatting game

The 2009 speed chatting game followed the simultaneous trust game. For this game, our ten players were placed into two teams of 5, each following the same protocol. Each player on a team was instructed that he/she would have a few minutes to meet (and we emphasized, to get to know) each member of the other team, thereby “speed chatting” with five other players, sequentially, as in a speed-dating situation. After meeting each partner, players were given 1 minute to jot down notes on a piece of paper. After meeting all members of the other group, each player received a sheet of paper with the picture of each person he or she had just met, and a series of eight personal questions about them (their age, their religion, their job, whether they had obtained their Baccalauréat (the French high-school diploma), the country in which they were born, the district in which they live, whether they are married and their favorite hobby). Players were allowed to consult their notes. For each question, subjects provided their answer, or selected “don’t know”, and indicated whether they learned this information from their chat, or simply guessed the answer. For each correct answer, subjects earned 1 euro.<sup>1</sup> Finally, players were asked to report any additional information they had learned about their interlocutor, as well as whether they believed they could be friends with this interlocutor and recommend this interlocutor to an employer. Figure A1-a illustrates a sample sheet for the speed chatting game.

Figure A1-a: Sample sheet of the 2009 speed chatting game.

**QUESTIONNAIRE SUR LE JEU DE CONVERSATION**  
**PROJET « COMPORTEMENTS DE JEU DES HABITANTS DE L'ILE DE FRANCE »**  
 (Sciences-Po Paris, Université Paris 1 Panthéon Sorbonne, Université de Stanford)

Numéro d'identification : \_\_\_\_\_



Aurélie

Questions	L'avez-vous deviné ou appris durant le jeu de conversation?	Indiquez sur une échelle de 1 à 10 votre degré de certitude dans votre réponse (1 signifie que vous doutez beaucoup de votre réponse, 10 signifie que vous en êtes complètement certain).
1. Quel âge a cette personne? _____	Deviné / Appris	1 2 3 4 5 6 7 8 9 10
2. Quelle est sa religion? _____	Deviné / Appris	1 2 3 4 5 6 7 8 9 10
3. Travaille-t-elle à son compte? OUI / NON	Deviné / Appris	1 2 3 4 5 6 7 8 9 10
4. A-t-elle le Baccalauréat? OUI / NON	Deviné / Appris	1 2 3 4 5 6 7 8 9 10
5. Dans quel pays est-elle née ? _____	Deviné / Appris	1 2 3 4 5 6 7 8 9 10
6. Dans quel arrondissement habite-t-elle? Si elle n'habite pas Paris, marquez "NP": _____	Deviné / Appris	1 2 3 4 5 6 7 8 9 10
7. Est-elle mariée? OUI / NON	Deviné / Appris	1 2 3 4 5 6 7 8 9 10
8. Quel est son loisir préféré? _____	Deviné / Appris	1 2 3 4 5 6 7 8 9 10

Questions complémentaires :

- Indiquez toutes les autres informations que vous avez apprises sur cette personne (vous pouvez écrire au verso si vous manquez de place).  
 \_\_\_\_\_  
 \_\_\_\_\_
- Indiquez sur une échelle de 1 à 10 si vous pourriez être ami avec cette personne (1 signifie « non, pas du tout », 10 signifie « oui, tout à fait ») :  

1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----
- Indiquez sur une échelle de 1 à 10 si vous recommanderiez cette personne à un employeur (1 signifie « non, pas du tout », 10 signifie « oui, tout à fait ») :  

1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

<sup>1</sup>Subjects were told that the 1-euro award was independent of whether they learned the information from their chat or guessed it.

## The 2009 voting game

The 2009 voting game took place after the speed chatting game. Each player in each of the two teams of five players formed during the speed chatting game was asked to play two roles, sequentially. First, each player was to be a voter, i.e. to choose one leader from the other team, knowing that the leader would have the responsibility of dividing 30 euros between herself and her electorate in any way she wanted (including keeping it all to herself). Each voter received a hand-out with the pictures of each of the five candidates she was to rank in order of preference for the role of leader. Second, each player was to be a leader: on a separate hand-out, each player had to indicate how much she would allocate to each of the members of her electorate, were she to be elected the leader. The player with the highest ranking in votes in each team became the leader, and her allocations were distributed between herself and the members of the other team.

The voting game was meant to measure taste-based discrimination and/or statistical discrimination after the speed-chatting socialization phase. Clearly, the decision of the voter to rank member  $i$  of the other team first can be motivated by unconditional altruism toward  $i$  (i.e.: the willingness to increase the chance for  $i$  of being elected and of getting 30 euros no matter how  $i$  might allocate the award). It can also be motivated by trust, which is the belief that  $i$  is most likely to return a larger share of her 30 euros to her electorate, or to certain members of her electorate. Similarly, the decision of the leader to allocate a strictly positive amount to member  $i$  of the other team can also be motivated by unconditional altruism toward  $i$  (i.e.: the willingness to increase  $i$ 's payoff irrespective of  $i$ 's electoral choice). It can also be motivated by belief-based reciprocal altruism, that is the willingness to reward  $i$  based on the belief that  $i$  voted for the leader.

## The 2009 dictator game

After the voting game, subjects were ushered into a single room to play a dictator game.<sup>2</sup> All players were shown the same set of six partners (whom we call recipients) on a large screen revealing only their faces and ascribed first names, which we strategically altered as is commonly done in correspondence tests conducted by economists (see Bertrand and Mullainathan (2004)). More precisely, among the six recipients, two were apparent FFF with Christian names, two were ambiguous with alternatively Muslim and Christian names, such that players could reasonably think they were FFF with Christian names or North Africans with Muslim names, and two were apparent black Africans. For half of the sessions, subjects viewed one of the ambiguous recipients and one of the Senegalese recipients with a Christian name, and the other ambiguous recipient as well as the other Senegalese recipient with a Muslim name; for the other half of the sessions, this was reversed. By doing so, we avoid any confound between the ethnic type of the recipient and the face of the recipient. Put differently, the fact that the same donor sees the same Senegalese face with alternated religious identities (one Christian, the other Muslim) allows us to run a within-face analysis. Figure A1-b illustrates the faces and alternating names of our recipients in the dictator game.

It is important to note that the four non-Senegalese recipients were recruited from the 19th district of Paris in a similar way as the 2009 players (while the Senegalese recipients, in order to assure ourselves that they would not be recognized by our Senegalese donors, were not residents of Ile de France). None of the recipients ever participated in our game sessions, and none was ever known personally by any of the donors.

The donors saw the sequence of recipients only once and were asked to make a decision to allocate  $a = \{0, 1, 2, 3, 4, 5\}$  euros to each recipient – out of 5 euros allotted to them each time, being assured that the amounts accruing to each recipient would actually be transferred to them. Given that the recipient has no say in the dictator game, differences in the dictator's donation to the various recipients is commonly interpreted as differences in unconditional altruism.

**Figure A1-b:** Variations in the ethno-religious identity of the recipients in the 2009 dictator game.



							
First name	Version 1	Sylvie	Georges	Khadija	Jean-Marc	Farida	Michel
	Version 2	Sylvie	Mohammed	Joséphine	Jean-Marc	Christine	Aboubacar
Ethnicity/ Religion	Version 1	FFF	FFF	SM	FFF	Muslim North African	SX
	Version 2	FFF	Muslim North African	SX	FFF	FFF	SM

<sup>2</sup>In this classic experimental game introduced by Kahneman, Knetsch and Thaler (1986), players view pictures of people whom they have never met and are given money either to keep for themselves or to share with the person (the “recipient”) whose picture they are viewing (being assured that the amounts accruing to each recipient will actually be transferred to them). There is no penalty for keeping the entire amount, and no one can influence the players’ donations: they are therefore, effectively, “dictators”.

## The 2009 strategic dictator game

The 2009 strategic dictator game immediately followed the 2009 dictator game. The strategic dictator game consisted in asking players to guess the amount allocated to each of the dictator game recipients by one of the session's FFF players (although, so as not to prime players to the ethnicity of the FFF model, we did not advertise that this model would specifically be FFF). Players were also told that the player who guessed closest to the actual decisions of this FFF model would receive a prize of 30 euros. The strategic dictator game therefore helps us determine the beliefs of our 2009 players about FFF generosity toward the various recipients in the 2009 dictator game.

## Appendix A2: Analysis of FFF guesses in the 2010 strategic dictator game

In the 2010 strategic dictator game, the 50 FFF players were shown, sequentially, the photographs of some of our 2009 players. Underneath the photograph, they were also shown the photographs of the six recipients from the 2009 dictator game. FFF players were asked to guess the donation of the pictured 2009 dictator to each of the six recipients. Players received 50 centimes for each correct answer.<sup>3</sup> Figure A2 illustrates a sample screenshot of the 2010 strategic dictator game.

**Figure A2:** Sample screenshot of the 2010 strategic dictator game.



Two versions of the game were prepared, but only one of them (randomly chosen) was selected for each game session. The same Senegalese dictator was ascribed a Muslim name in one version and a Christian name in the other. This allows us to run a within-dictator analysis (i.e.: to control for the face of the dictator) when we compare FFF guesses about SM dictator donations to FFF recipients with FFF guesses about SX dictator donations to FFF recipients.

This comparison enables us to determine whether FFF expect SM to show lower levels (as compared to SX) of unconditional altruism toward FFF recipients before socialization (our 2010 FFF players were indeed not aware that a speed chatting game had occurred before the 2009 dictator game).

We estimate the following equation over the set of triads composed of FFF guessers, SM and SX dictators and FFF recipients:

$$y = a + b.(FFF \rightsquigarrow SM \rightarrow FFF) + c'.\mathbf{X} + d'.\mathbf{Z} + e'.\mathbf{H} + f'.\mathbf{\Pi} + \epsilon,$$

where  $y$  refers to FFF guesses about SM or SX donation (or unconditional altruism) to FFF recipients. The dummy  $(FFF \rightsquigarrow SM \rightarrow FFF)$  is equal to 1 if the guesser is FFF, the dictator is SM and the recipient is FFF and to 0 if the guesser is FFF, the dictator is SX and the recipient is FFF. As a consequence, coefficient  $b$  captures the difference between FFF guesses about SM dictators' donations to FFF recipients

<sup>3</sup>In cases where FFF had to guess donation amounts for player match-ups that never actually occurred in 2009, they were automatically given 25 centimes.

and FFF guesses about SX dictators' donations to FFF recipients. We control for a series of socioeconomic characteristics of FFF guessers (gender, age, education, household income and religiosity) that are denoted by  $\mathbf{X}$ . Additionally, in order to run a within-face analysis, we introduce  $\mathbf{Z}$  and  $\mathbf{H}$ , two vectors of face fixed effects for the dictator and the recipient respectively. Finally, we introduce  $\mathbf{\Pi}$ , a vector of session fixed effects. Note that standard errors are clustered at the guesser level since guesses from the same guesser cannot be considered independent of one another.

Table A2 presents OLS estimates from three model specifications. In column 1, we control for the dummy (FFF  $\rightsquigarrow$  SM  $\rightarrow$  FFF) only. In column 2, we add dictator- and recipient- face fixed effects as well as session fixed effects. In column 3, we include the socio-demographic characteristics of the guesser. The non significant coefficient in row (1) in all three columns shows that guesses of the 2010 FFF players about the donation of SM and SX dictators to FFF recipients do not differ.

**Table A2:** Guesses of FFF players in the 2010 strategic dictator game. OLS analysis.

	Dep. var.: Guesses of FFF players		
	(1)	(2)	(3)
(1) FFF $\rightsquigarrow$ SM $\rightarrow$ FFF	-0.013 (0.068)	-0.000 (0.064)	-0.008 (0.066)
<u>SES of the guesser</u>			
(2) Female			-0.289 (0.184)
(3) Age			-0.001 (0.007)
(4) Household income			-0.004 (0.040)
(5) Education			0.201*** (0.034)
(6) Religiosity			0.249*** (0.065)
Session fixed effects	No	Yes	Yes
Dictator face fixed effects	No	Yes	Yes
Recipient face fixed effects	No	Yes	Yes
R <sup>2</sup>	0.000	0.138	0.400
Observations	600	600	576

*Notes:* The table reports OLS estimates. The unit of observation is a triad formed by a FFF guesser, a SM or SX dictator and a FFF recipient. The dependent variable ranges from 0 (the guesser guesses that the donor gives nothing to the recipient) to 5 (the guesser guesses that the donor gives her total endowment to the recipient). “FFF  $\rightsquigarrow$  SM  $\rightarrow$  FFF” takes the value 1 if the guesser is FFF, the dictator is SM and the recipient is FFF and 0 if the guesser is FFF, the dictator is SX and the recipient is FFF. “Female” takes the value 1 if the FFF guesser is male and 0 otherwise. “Age” is equal to the age of the FFF guesser. “Education” ranges from 1 (less than primary school completed) to 10 (higher than college degree completed). “Household income” ranges from 1 (less than 500 euros monthly) to 11 (more than 7,500 euros monthly). “Religiosity” ranges from 1 (never attends religious services) to 7 (attends religious services several times a week). Standard errors are clustered at the FFF guesser level. \*, \*\* and \*\*\* indicate significance at the 10, 5 and 1% levels.

### Appendix A3: Analysis of FFF guesses in the 2010 double strategic dictator game

In the 2010 strategic dictator game, the 50 FFF players were shown the photographs of two of our 2009 Senegalese female players, as well as of two of our 2009 FFF female dictators. Underneath these photographs, they were also shown the photographs of the six recipients from the 2009 dictator game. Our 2010 FFF players were asked to guess the guesses of the 2009 Senegalese female players during the 2009 strategic dictator game about the amount that the 2009 FFF dictators had transferred to each of the six recipients from the 2009 dictator game. Players received 50 centimes for each correct answer.<sup>4</sup> Figure A3 illustrates a sample screenshot of the 2010 double strategic dictator game.

<sup>4</sup>In cases where FFF had to guess donation amounts for player match-ups that never actually occurred in 2009, they were automatically given 25 centimes.

**Figure A3:** Sample screenshot of the double 2010 strategic dictator game.



Two versions of the game were prepared but only one of them (randomly chosen) was selected for each game session. In order to run a within-Senegalese player analysis (i.e., to control for the face of this player), the same 2009 Senegalese player was ascribed the Muslim first name “Aicha” in one version, and the Christian first name “Monique” in the other.

The 2010 double strategic dictator game allows us to determine whether FFF hold different second-order beliefs about SM and SX, that is whether they expect SM beliefs about FFF unconditional altruism toward SM to be more pessimistic than SX beliefs about FFF unconditional altruism toward SX.

We estimate the following equation over the set of quatuors composed of a FFF guesser, a SM or SX player, a FFF dictator and a SM or SX recipient:

$$y = a + b.(FFF \rightsquigarrow SM \rightsquigarrow FFF \rightarrow SM) + c'.\mathbf{X} + d'.\mathbf{Z} + e'.\mathbf{H} + f'.\mathbf{J} + g'.\mathbf{\Pi} + \epsilon,$$

where  $y$  refers to FFF guesses on SM or SX players' guesses on FFF dictators' donations to SM or SX recipients. The dummy  $(FFF \rightsquigarrow SM \rightsquigarrow FFF \rightarrow SM)$  is equal to 1 if the guesser is FFF, the player is SM, the dictator is FFF and the recipient is SM and 0 if the guesser is FFF, the player is SX, the dictator is FFF and the recipient is SX. As a consequence, coefficient  $b$  captures the difference between FFF guesses about SM guesses on FFF dictators' donations to SM recipients and FFF guesses about SX guesses on FFF dictators' donations to SX recipients. We control for a series of socioeconomic characteristics of FFF guessers (gender, age, education, household income and religiosity) that are denoted by  $\mathbf{X}$ . Additionally, in order to run a within-face analysis, we introduce  $\mathbf{Z}$ ,  $\mathbf{H}$  and  $\mathbf{J}$ , three vectors of face fixed effects for the player, the dictator and the recipient respectively. Finally, we introduce  $\mathbf{\Pi}$ , a vector of session fixed effects. Note that standard errors are clustered at the guesser level since guesses from the same guesser cannot be considered independent of one another.

Table A3 presents OLS estimates from three model specifications. In column 1, we control for the dummy  $(FFF \rightsquigarrow SM \rightsquigarrow FFF \rightarrow SM)$  only. In column 2, we add player-, dictator- and recipient- face fixed effects as well as session fixed effects. In column 3, we include the socio-demographic characteristics of the guesser. The non significant coefficient in row (1) in all three columns shows that guesses of the 2010 FFF players about SM guesses on FFF dictators' donations to SM recipients are similar to their guesses about SX guesses on FFF dictators' donations to SX recipients.

**Table A3:** Guesses of FFF players in the 2010 double strategic dictator game. OLS analysis.

	Dep. var.: Guesses of FFF players		
	(1)	(2)	(3)
(1) FFF $\rightsquigarrow$ SM $\rightsquigarrow$ FFF $\rightarrow$ SM	0.020 (0.132)	-0.002 (0.128)	0.027 (0.133)
<u>SES of the guesser</u>			
(2) Female			0.074 (0.267)
(3) Age			0.006 (0.011)
(4) Household income			0.006 (0.055)
(5) Education			0.179*** (0.057)
(6) Religiosity			0.287*** (0.089)
Session fixed effects	No	Yes	Yes
Senegalese player face fixed effects	No	Yes	Yes
FFF dictator face fixed effects	No	Yes	Yes
Recipient face fixed effects	No	Yes	Yes
R <sup>2</sup>	0.000	0.177	0.374
Observations	200	200	192

*Notes:* The table reports OLS estimates. The unit of observation is a quatuor formed by a FFF guesser, a SM or SX player, a FFF dictator and a SM or SX recipient. The dependent variable ranges from 0 (the guesser guesses that the player guesses that the FFF dictator gives nothing to the recipient) to 5 (the guesser guesses that the player guesses that the FFF dictator gives her total endowment to the recipient). “FFF  $\rightsquigarrow$  SM  $\rightsquigarrow$  FFF  $\rightarrow$  SM” takes the value 1 if the guesser is FFF, the player is SM, the dictator is FFF and the recipient is SM and 0 if the guesser is FFF, the player is SX, the dictator is FFF and the recipient is SX. “Female” takes the value 1 if the FFF guesser is male and 0 otherwise. “Age” is equal to the age of the FFF guesser. “Education” ranges from 1 (less than primary school completed) to 10 (higher than college degree completed). “Household income” ranges from 1 (less than 500 euros monthly) to 11 (more than 7,500 euros monthly). “Religiosity” ranges from 1 (never attends religious services) to 7 (attends religious services several times a week). Standard errors are clustered at the FFF guesser level. \*, \*\* and \*\*\* indicate significance at the 10, 5 and 1% levels.

## Appendix A4: Analysis of FFF guesses in the 2010 incomes game

In this game, we showed our 2010 FFF players the pictures of the six recipients from the 2009 dictator game with their ascribed first names and asked them to guess the monthly income of each of these individuals. Half of the FFF players saw the picture of the Senegalese female recipient and the picture of the Senegalese male recipient with the ascribed first names “Khadija” and “Michel” respectively, and half saw the picture of the Senegalese female recipient and the picture of the Senegalese male recipient with the ascribed first names “Joséphine” and “Aboubacar” respectively. This experimental set up allows us to test whether, holding the picture of the Senegalese constant, FFF hold different beliefs about SM *versus* SX monthly income.

We estimate the following equation over the set of pairs composed of a FFF guesser and a SM or SX recipient:

$$y = a + b.(FFF \rightsquigarrow SM) + \mathbf{c}' \cdot \mathbf{X} + \mathbf{d}' \cdot \mathbf{Z} + \mathbf{e}' \cdot \mathbf{\Pi} + \epsilon,$$

where  $y$  refers to FFF guesses about SM or SX monthly income. The dummy (FFF  $\rightsquigarrow$  SM) is equal to 1 if the recipient is SM and to 0 if the recipient is SX. As a consequence, coefficient  $b$  captures the difference between FFF guesses about SM monthly income and FFF guesses about SX monthly income. We control for a series of socioeconomic characteristics of FFF guessers (gender, age, education, household income and religiosity) that are denoted by  $\mathbf{X}$ . Additionally, in order to run a within-face analysis, we introduce  $\mathbf{Z}$ , a vector of face fixed effects for the recipient. Finally, we introduce  $\mathbf{\Pi}$ , a vector of session fixed effects. Note that standard errors are clustered at the guesser level. As a matter of fact, guesses stemming from the same guesser cannot be considered independent of one another.

Table A4 presents OLS estimates from three model specifications. In column 1, we control for the dummy (FFF  $\rightsquigarrow$  SM) only. In column 2, we add recipient face fixed effects as well as session fixed effects. In column 3, we include the socio-demographic characteristics of the guesser. The non significant coefficient in row (1) in all three columns shows that guesses of the 2010 FFF players about the monthly income of SM and SX recipients do not differ.

**Table A4:** FFF beliefs about SM and SX monthly income. OLS analysis.

	Dep. var.: Monthly income of the recipient		
	(1)	(2)	(3)
(1) FFF $\rightsquigarrow$ SM	0.020 (0.208)	-0.046 (0.182)	0.017 (0.188)
(2) Female			-0.502** (0.207)
(3) Age			0.009 (0.017)
(4) Household income			0.128 (0.080)
(5) Education			0.142 (0.093)
(6) Religiosity			-0.126* (0.067)
P-value of the test: (1)=0	0.92	0.80	0.93
Session fixed effects	No	Yes	Yes
Face fixed effects	No	Yes	Yes
R <sup>2</sup>	0.000	0.322	0.431
Observations	100	100	96

*Notes:* The table reports OLS estimates. The unit of observation is a dyad formed of FFF guessers and SM or SX recipients. The dependent variable ranges from 1 (less than 500 euros monthly) to 11 (more than 7,500 euros monthly). “FFF  $\rightsquigarrow$  SM” takes the value 1 if the recipient is SM, and 0 if the recipient is SX. “Female” takes the value 1 if the FFF player is female and 0 otherwise. “Age” is equal to the age of the FFF player. “Education” ranges from 1 (less than primary school completed) to 10 (higher than college degree completed). “Household income” ranges from 1 (less than 500 euros monthly) to 11 (more than 7,500 euros monthly). “Religiosity” ranges from 1 (never attends religious services) to 7 (attends religious services several times a week). Standard errors are clustered at the FFF guesser level. \*, \*\* and \*\*\* indicate significance at the 10, 5 and 1% levels.