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"One Muslim is Enough!" Evidence from a Field Experiment in France

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Anti-Muslim prejudice is widespread in Western countries. Yet, Muslims are expected to constitute a growing share of the total population in these countries over the next decades. This paper suggests that this demographic trend, other factors held constant, will increase anti-Muslim prejudice. Relying on experimental games and a formal model, we find that French players with no recent immigrant background discriminate against Muslims when the proportion of Muslims in their midst increases. Further analysis provides tentative evidence that this discrimination is taste-based.*

When there's one [Muslim], that's ok;
it's when there's a lot of them that there are problems.

Brice Hortefeux, Former French Minister of Interior.[1]

I. Introduction

On January 20, 2011, Baroness Sayeed Warsi, the first Muslim woman to serve in the British cabinet, argued that prejudice against Muslims is seen by many people in the UK as normal and uncontroversial, and that "Islamophobia has now passed the dinner table test."[2] Anti-Muslim prejudice is not specific to the UK. For instance, DUGUET *et al.* [2010], SAFI and SIMON [2013] and CNCDH [2014] show that it is pervasive in France, while DAVILA and MORA

1. This remark was uttered in French during a photo-op on September 5, 2009 at the UMP (the "Union for a Popular Movement", the centre-right political party in France led at the time by Nicolas Sarkozy) Summer School in Seignosse, in which the Minister was interacting with a young militant, Hamid. Brice Hortefeux joked before the statement in the epigraph that this militant, who was known to be Muslim, "does not correspond at all to the prototype" after having been told that the militant eats pork and drinks beer. The video of this interaction, procured by *Le Monde*, was uploaded at http://www.dailymotion.com/video/xafz5w_le-derapage-de-brice-hortefeux-la-h, and we downloaded it on September 24, 2010. Translated from the French by the authors.

2. This remark was uttered at the University of Leicester. Excerpts from the speech are available at http://www.bbc.co.uk/blogs/worldhaveyoursay/2011/01/has_prejudice_against_muslims.html. We accessed this website on September 1, 2011.

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[2005] and KAUSHAL, KAESTNER, and REIMERS [2007] document its rise in the US after September 11. Despite this context of widespread anti-Muslim prejudice, Muslim populations are expected to constitute a growing share of the total population in Western countries over the next decades, through continued migration and higher-than-average fertility rates among Muslims. For instance, according to the PEW [2011], the Muslim share of the population in Europe as a whole is expected to grow by nearly one-third over the next 20 years, rising from 6% of the region's inhabitants in 2010 to 8% in 2030. Given these demographic trends, how will anti-Muslim prejudice evolve? Will the European host populations show more hostile attitudes toward Muslims as the salience[3] of this out-group increases?

Our objective is to understand how anti-Muslim prejudice in Western countries will evolve with Muslim out-group salience over the next decades, and to elicit the mechanism(s) likely to underlie this evolution. To do so, we rely on experimental games that we conducted in France in 2009.[4] Our games bring together French players with no recent immigrant background (whom we designate as FFF hereafter)[5] and a set of immigrants.[6] These immigrants belong to two ethno-linguistic groups in Senegal, the Joolas and the Serers, who 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 in the same time period and with the same economic motivations.[7] The goal of this experimental protocol is to compare the effect of SM out-group salience on FFF behavior toward SM with the effect of SX out-group salience on FFF behavior toward SX.

Our paper complements previous survey-based studies (see BOWYER [2009] and SAVELKOUL *et al.* [2010]), which have analyzed the relationship between Muslim out-group salience and anti-Muslim prejudice in several ways. We take advantage of having a control group of SX who differ from SM only by religion. And so, by comparing changes in FFF attitudes toward matched Muslim and Christian immigrants when the relative size of each group increases, we

3. By "salience" of Muslims we refer to Muslims' increasing percentage in the population, not to the fact that Muslims may become more visible (through the wearing of Islamic headscarves for instance) irrespective of their number. Hence, the meaning of "salience" throughout this paper is purely quantitative, not qualitative.

4. Technically, and relying on the taxonomy of 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. Henceforth, for economy of expression, we call our intervention a "field experiment".

5. By FFF, we refer to French citizens with four grandparents born inside metropolitan France. In other words, they are, at least, third-generation French (hence the FFF acronym). We identify this set in order to maximally differentiate French citizens with no recent immigrant background (FFF) from those of recent migration to France.

6. In France, the term "immigrants" refers only to those permanently and legally residing in France who were born abroad and were non-French at birth. In this paper, we use the term much more broadly, viz., to refer to all residents in France who were born outside the EU, who moved to France after World War II, and their descendants.

7. 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. We recognize that our identification strategy, fully elaborated in ADIDA, LAITIN, and VALFORT [2010], poses a challenge to external validity. However, this is precisely the trade-off that comes naturally from a research design seeking to establish internal validity in identifying the Muslim effect, separate from a region-of-origin effect. Moreover, since sub-Saharan Africans are less readily associated with Islam than are North Africans in France (DIOP [1988]), as we discuss later, the effects we estimate in this experiment are likely to be underestimates of the marginal discriminatory effects faced by Muslims in France.

isolate a Muslim effect from possible confounds such as race, ethnicity, or nationality. Furthermore, by relying on experimental games bringing together FFF, SM, and SX, we improve upon previous studies with an analysis that looks directly at discriminatory behavior. Finally, by exogenously varying the ethno-religious composition of the player-set across the game sessions, we overcome the simultaneity bias that typically contaminates previous studies. These studies indeed investigate the relationship between demographic context and attitudes toward migrants. But racially intolerant individuals from the majority community are unlikely to choose to live in areas with large ethnic minority populations (see ALESINA, BAQIR, and EASTERLY [1999] and BAYER and MCMILLAN [2012, forthcoming] for a discussion of this Tiebout-like sorting).

Our results reveal that FFF discriminate against SM with SM out-group salience, in a way that is not matched by the impact of SX out-group salience on FFF behavior toward SX. We portray this result as the *Hortefeux effect* (see the epigraph) to the extent that the presence of one additional SM is enough to undermine FFF generosity toward SM recipients. Moreover our results suggest that the Hortefeux effect is taste-based: the activation of FFF discrimination toward SM when SM numbers increase seems to result from changes in FFF preferences and notably from FFF taste-based discrimination against SM when FFF are surrounded by SM. It does not appear linked to FFF beliefs, such as SM being less generous toward FFF when their numbers increase.

The paper proceeds as follows. In SECTION II, we present the theoretical background. In SECTION III, we introduce our experimental setup. In SECTION IV, we display our experimental results, including the Hortefeux effect. In SECTION V, we adapt a rational model augmented with other-regarding preferences to explain the behavior of FFF donors in the dictator game. We then run an empirical test providing tentative evidence that the Hortefeux effect derives from an activation of FFF taste-based discrimination against Muslims with Muslim out-group salience. SECTION VI provides robustness checks. SECTION 7 summarizes our major conclusions and discusses their implications for the integration of Muslim immigrants into Western societies.

II. Theoretical Background

This paper contributes to two strands of the literature on discrimination. The first strand theorizes the mechanisms linking attitudes toward the out-group and out-group relative size. Here, two theories oppose each other. Intergroup contact theory predicts that an increase in the relative size of the minority provides contact opportunities with the minority, which in turn attenuates prejudice by the dominant group against members of the minority (ALLPORT [1954]). Group threat theory predicts that an increase in the relative size of the minority generates hostile attitudes by the dominant group toward the minority, either because of increased competition over tangible scarce resources or because of the perception by the dominant group of a symbolic threat (which we call "distaste") to one's cultural integrity (BLALOCK [1967]). In line with this theory, SCHELLING [1971] theorizes the out-group/in-group ratio (the so-called "tipping point") above which household owners with an ideal point for the degree of neighborhood homogeneity exit from that neighborhood. But while Schelling assumes perfect information (1971, 167-68) about the racial composition of a well-defined and bounded neighborhood, NADEAU and LEVINE [1993] show that individuals in fact overestimate such composition

out of a feeling of threat (1993, 333). AlbaALBA, RUMBAUT, and MAROTZ [2005], relying on data from the US General Social Survey, similarly find that Americans (both whites and minorities) radically overestimate the percentage of the minority population in the US, and the degree of their imprecision has large effects on their political attitudes, e.g. on immigration. Individuals' feeling of threat toward the out-group may therefore not only activate their hostility toward this out-group when this out-group's numbers increase but also lead them to perceive this out-group as more numerous than it actually is. In recent work, WONG *et al.* [2012] utilize a novel map-drawing instrument to show that individuals hold subjective understandings of what their local environments are, and that individuals draw on these subjective understandings to describe the demographic make-up of their local context.

The second strand puts these theoretical mechanisms to test. Several scholars have found the relationship between the salience of a minority and attitudes toward that minority to be statistically insignificant (see STRABAC and LISTHAUG [2008] for Europe; HJERM [2007] for Sweden; CITRIN and SIDES [2008] for Europe and the US). Yet others identify a significant effect that generally points to an increase in negative attitudes toward the out-group when the out-group becomes more salient (see SCHEEPERS, GIJSBERTS, and COENDERS [2002], SEMYONOV, RAIJMAN, and GORODZEISKY [2006], GORODZEISKY and SEMYONOV [2009] for Europe; DUSTMANN and I. [2001] for the UK; KRUEGER and PISCHKE [1997] for Germany; SCHLUETER, SCHMIDT, and WAGNER [2008] for Germany and Russia; SCHLUETER and SCHEEPERS [2010] for the Netherlands; TAYLOR [1998], ECHENIQUE and FRYER [2007], CARD, MAS, and ROTHSTEIN [2008] and BOUSTAN [2010] for the US). For instance, SEMYONOV, RAIJMAN, and GORODZEISKY [2006] show that anti-foreigner sentiment is more pronounced in places with a large proportion of foreign populations. Similarly, ECHENIQUE and FRYER [2007] show, based on US data, that black students tend to be integrated when they are relatively few in a school, but that their segregation increases dramatically as their share of the student population increases. Additionally, some of these studies provide support for Schelling's tipping point. CLARK [1991], relying on survey data of US urban Whites, Blacks and Hispanics confirms that only in quite limited situations can integrated neighborhoods be sustained in equilibrium. Using a regression discontinuity design with US census data, CARD, MAS, and ROTHSTEIN [2008] also confirm Schelling's model, finding the tipping point for Whites in US suburbs in the range of 5 to 20% minority share. BOUSTAN [2010] provides further evidence of a "white flight" during the post-war period in the US, a process by which white families left central city neighborhoods to avoid living in majority-black cities. Only a few studies have analyzed the relationship between Muslim out-group salience and anti-Muslim prejudice. Those that do also point to an increase in anti-Muslim prejudice in geographic areas where Muslim out-group size is larger. BOWYER [2009] shows that residential proximity in the UK to Pakistanis and Bangladeshis, who are primarily Muslim, is associated with more negative attitudes toward ethnic minorities. Similarly, relying on survey data, SAVELKOUL *et al.* [2010] find that Muslim out-group size is related to anti-Muslim attitudes by Dutch citizens with no recent immigrant background.

III. Experimental Set Up

In this section, we present our subject pool, our treatment (i.e., the exogenous variation of the ethno-religious composition of the player-sets across the game sessions) and the dictator game that allows us to analyze the impact of Muslim out-group salience on FFF behavior.

III.1. *The Subject Pool*

In March 2009, we set up a series of experimental games between FFF, SM and SX. We recruited 27 Senegalese players from the Joola and Serer ethnic communities: 16 self-identified as Muslims (SM) and 11 as Christians (SX). 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 never informed about the purpose of the games, but was paid for each of his Joola and Serer recruits who showed up for registration and participated in the games. TABLE I 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 that runs against us finding a negative effect of SM out-group salience on FFF behavior toward SM since SM participants are more moderate in their religious practices. We treat this bias in the robustness check section by controlling for the average socioeconomic characteristics of the SM and SX players in the game session, and notably for their religiosity. As expected, our results are robust to the inclusion of average religiosity of the SM and SX players.

It is important here to reiterate what we previously highlighted in our study of anti-Muslim discrimination on the French labor market (see ADIDA, LAITIN, and VALFORT [2010]): 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: the discriminatory effects of being Muslim for Maghrebis, the Muslims who are at the center of public debate 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 the effects of being a Muslim from Senegal.

We also recruited 53 non-Senegalese players. The ethno-religious breakdown of these 53 non-Senegalese players was as follows. First, 29 players, among whom 21 FFF, were of European background. We categorize all these 29 players as being of Judeo-Christian background. The 19 players who specified their religion confirmed that they were either Christian (18 players) or Jewish (1 player), while the others (who self-declared as "atheist" or who did not specify a religious belonging) all had recognizable Judeo-Christian first names: Bertrand, Danièle, Fabien, Florence, Karl, Marine, Rénald, Sophie, Spyro, Yves. Second, 12 players

TABLE I. – Socioeconomic Characteristics of SM and SX Participants in our 2009 Experiments. Difference of Means Analysis

	SM	SX	Difference
Variable	(a)	(b)	(b-a)
Female	0.50	0.55	+0.05
	(N=16)	(N=11)	p=0.83
Age	33.19	31.45	−1.74
	(N=16)	(N=11)	p=0.59
Education	7.33	7.63	+0.30
	(N=15)	(N=8)	p=0.83
Household income	3.79	4.00	+0.21
	(N=14)	(N=9)	p=0.85
Religiosity	2.60	4.90	+2.30
	(N=15)	(N=10)	p=0.00
Knows players from previous game sessions	0.43	0.36	−0.07
	(N=16)	(N=11)	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" is a dummy that takes the value 1 if the participant is female and the value 0 otherwise. "Age" is equal to the age of the participant. "Education" is a categorical variable that ranges from 1 (less than primary school completed) to 10 (higher than college degree completed). "Household income" is a categorical variable that ranges from 1 (less than 500 euros monthly) to 11 (more than 7,500 euros monthly). "Religiosity" is a categorical variable that ranges from 1 (never attends religious services) to 7 (attends religious services several times a week). "Knows players from previous sessions" is a dummy that takes the value 1 if the participant knows players who participated in previous game sessions and the value 0 otherwise.

were of African background. We categorize 6 of these 12 players as being of Judeo-Christian background. The 5 players among them who specified their religion confirmed that they were Christians, while the remaining player (who didn not specify a religious belonging) had a recognizable Judeo-Christian first name: Julie. We categorize the other 6 African players as being of Muslim background. The 4 players among them who specified their religion confirmed that they were Muslims. As for the 2 players who did not specify a religious belonging, one of them was known by our ethnographers to stem from a Muslim family while the other had a recognizable Muslim name: Maïmouna. Finally, 12 players were of North African background. We categorize these 12 players as being of Muslim background. The 9 players who specified their religion confirmed that they were Muslims, while all the others (who self-declared as "atheist" or who did not specify a religious belonging) had recognizable Muslim first names: Jalal, Nabil, Reza.

We recruited these players using a stratified (by population density) but not always fully random recruitment procedure centered on the 21 metro stations in the ethnically diverse setting of the 19th district of Paris.[8] 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,

8. 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).

TABLE II. – 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."

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,[9] 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 sample of French respondents in 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 (see HOSKIN [1985], MEERTENS and PETTIGREW [1997], PETTIGREW [1998], LAHAV [1997], SAXTON and BENSON [2003] and ALBERTSON and GADARIAN [2012]).

In order to obtain a comparable group to our FFF 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, and thus are, by our acronym only FF. We thus cannot exclude ESS respondents with one or more grandparents born abroad: our sample of FF respondents from the ESS is thus, if anything, more open to diversity than would be a sample of 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 FF respondents in the ESS, since we hypothesize that the latter are more open to diversity than a random sample of FFF. TABLE II presents the results of a difference of means analysis between our FFF and the ESS's FF sample. It shows that our FFF sample is, on average, more left-wing than the random sample of FF respondents in the 2009 ESS (significant at the 99% confidence level). These results are confirmed by an OLS analysis reported in TABLE III. We therefore have confirmation that FFF participants in our 2009 experiments are more open to diversity compared to a representative

9. This stands for roughly 8.5 times the hourly minimum wage in France as of 2009.

TABLE III. – 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***	0.522***	0.517***	0.473**	0.447**
	(0.177)	(0.176)	(0.179)	(0.191)	(0.198)
(2) Female		0.063	0.054	0.046	−0.007
		(0.183)	(0.202)	(0.203)	(0.211)
(3) Age			0.001	−0.001	0.000
			(0.006)	(0.006)	(0.007)
(4) Education				−0.093	−0.050
				(0.105)	(0.111)
(5) Household income					−0.130
					(0.089)
R^2	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 individual. The dependent variable is categorical. It 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" is a dummy that takes the value 1 if the individual is a respondent to the 2009 ESS, and the value 0 if she is a participant in our 2009 experiments. "Female" is a dummy that takes the value 1 if the individual is female and the value 0 otherwise. "Age" is equal to the age of the individual. "Education" is a categorical variable that ranges from 1 (less than lower secondary completed) to 4 (post secondary completed). "Household income" is a categorical variable that ranges from 1 (first quintile) to 5 (fifth quintile). Standard errors are robust. *, ** and *** indicate significance at the 10, 5 and 1% levels.

sample of FFF in France that same year. As a consequence, our results suffer from a bias that leads to an underestimation of anti-Muslim discrimination on the part of FFF.

III.2. *The Treatment*

The 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; and a game phase, during which subjects played a series of experimental games. We supervised eight sessions of games 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. 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,[10] and only one of the Senegalese players out of a total 27 verbally wondered if there was something odd about having other players in the room who were from his Senegalese language group.

Each session was comprised of ten players. Based on information learned at registration, subjects were assigned to a session so as to satisfy three criteria. First, in order to obtain statistical power, all sessions needed at least two FFF-SM and one FFF-SX interactions, or the reverse. Second, we needed to "treat" our game sessions properly. We did so by exogenously

10. 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?]

TABLE IV. – Variations in the Ethno-Religious Composition of Player-Sets Across Game Sessions

	S1	S2	S3	S4	S5	S6	S7	S8
Players of European and Judeo-Christian background	4	3	2	3	5	5	4	3
Among which FFF	*4*	*2*	*2*	*3*	*4*	*2*	*2*	*2*
Players of African and Judeo-Christian background	2	4	2	2	1	2	2	2
Among which SX	*1*	*2*	*1*	*1*	*1*	*2*	*1*	*2*
Players of African and Muslim background	2	2	2	2	4	3	3	4
Among which SM	*1*	*2*	*2*	*2*	*3*	*2*	*1*	*3*
Players of North African and Muslim background	2	1	4	3	0	0	1	1

varying the ethno-religious composition (and notably the number of SM and SX) of our game sessions, meaning that players were assigned to a game session without them knowing its ethno-religious composition. This approach allows us to capture the effect of out-group salience, by comparing the change in FFF behavior toward SM when the number of SM increases, with the change in FFF behavior toward SX when the number of SX increases.

TABLE IV specifies the ethno-religious composition of each session, by distinguishing between players of European (Judeo-Christian) background, players of African (Judeo-Christian) background, players of African (Muslim) background, and players of North African (Muslim) background. The number of SM varies from 1 (in sessions 1 and 7) to 3 (in sessions 5 and 8), while the number of SX varies from 1 (in sessions 1, 3, 4, 5, 7) to 2 (in sessions 2, 6 and 8).[11] Third, to control for gendered interactions through session fixed effects, we supervised three all male sessions, three all female sessions and two mixed gender sessions.

III.3. *The Dictator Game*

We answer our main research question on the impact of Muslim out-group salience on FFF behavior with data collected from a dictator game that was played communally (see FERSHTMAN and GNEEZY. [2001] for a previous use of the dictator game in an ethnically diverse setting).[12] 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

11. The fact that the number of SM varies from 1 to 3, while the number of SX varies from 1 to 2, introduces a concern: could the Hortefeux effect derive from the fact that FFF exposure to SM out-group salience means an exposure to 3 Senegalese Muslims, while FFF exposure to SX out-group salience means an exposure to 2 Senegalese Christians? In our results section we address this concern and show that the Hortefeux effect is not driven by this asymmetry.

12. The dictator game was introduced by KAHNEMAN, KNETSCH, and THALER [1986]. The classic version is a two-person game in which player 1, called the "donor", has to decide what share $s \in [0,1]$ of an amount of money normalized to 1 he gives to player 2, called the "recipient." For a given share s, the monetary payoff of player 1 and of player 2 is given by $x_1 = 1 - s$ and $x_2 = s$ respectively. The dictator game provides compelling evidence for other-regarding preferences (i.e. unconditional altruism) challenging the *homo oeconomicus* postulate, which predicts that the donor should not give anything of his initial endowment to the recipient. Indeed, FORSYTHE *et al.* [1994] show that 80% of their subjects choose to give a strictly positive share of their initial endowment, with 20% choosing to divide this endowment equally. Reviewing eleven results from dictator games, CAMERER [2003] reveals the generality of this finding, as the mean offer ranges from 10% to 52%.

any clothes or jewelry revealing religious affiliation, with the exception of one non-Senegalese player, who wore a headscarf signaling a Muslim identity.

The 2009 dictator game took place after the group of ten had played a series of simultaneous trust games; a speed-chatting game in which all players got to meet five other players in four-minute conversations, as in a speed-dating scenario; and a voting game in which each speed-chatting group member elected, among the group of players he or she had just met, a leader who would then distribute funds to his/her electorate at his/her discretion (see FIGURE 1 for a flowchart of our games). Therefore, by the start of the dictator game, all ten players already knew a good deal of information about one another, especially due to the speed chatting game. However, at no time did any of our players know the game decisions of any of the other players in their session.[13]

Our experimental setup for the dictator game was the only one to bring together all players in a single room – hence guaranteeing the activation of group salience effects. All players (whom we refer to as donors) 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.[14] Of these six recipients, two were apparent FFF with Christian names, two were ambiguous with alternatively Muslim and Christian names, such that donors could reasonably think they were FFF with Christian names or North Africans with Muslim names, and two were apparent black Africans. These last two, a Senegalese man and a Senegalese woman, were the recipients of interest for this analysis. 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, notably when we analyze the amount given by FFF donors to Senegalese recipients. Put differently, the fact that FFF donors see the same Senegalese face with alternated religious identities (one Christian, the other Muslim) allows us to run a within-face analysis. FIGURE 2 illustrates the faces and alternating names of our recipients in the dictator game.

The four non-Senegalese recipients, just like the donors, were recruited in the 19th district of Paris. The Senegalese recipients, however, were recruited outside Ile-de-France, to ensure that our Senegalese donor players would not know them. Our recruiting strategy worked: none of our recipients was ever known personally by any of our 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

13. During our initial presentation of the experiments, we emphasized that all game decisions would remain anonymous and private at all times. Notably, players were informed about their earnings and received them only after all the games had been played. 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, 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.

14. We were careful to not violate the professional norm among experimental economists that proscribes the dissemination of false information to laboratory subjects. Details on our fulfillment of this norm, and the IRB approval of our protocol, are available upon request.

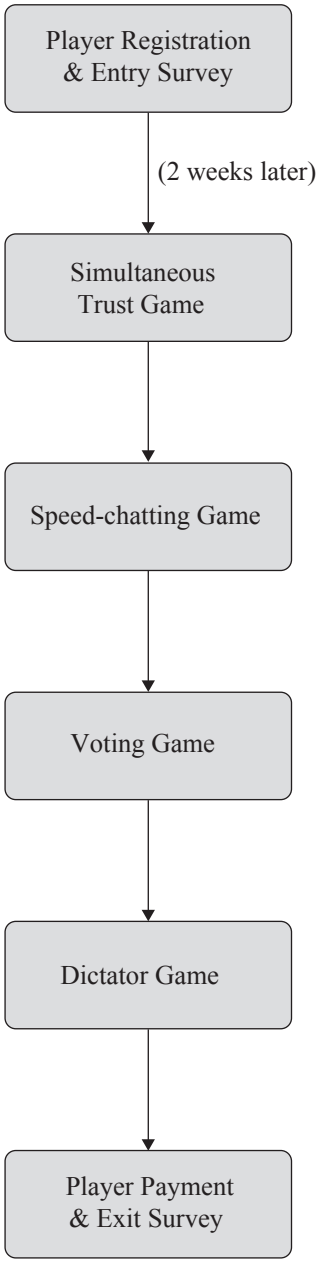
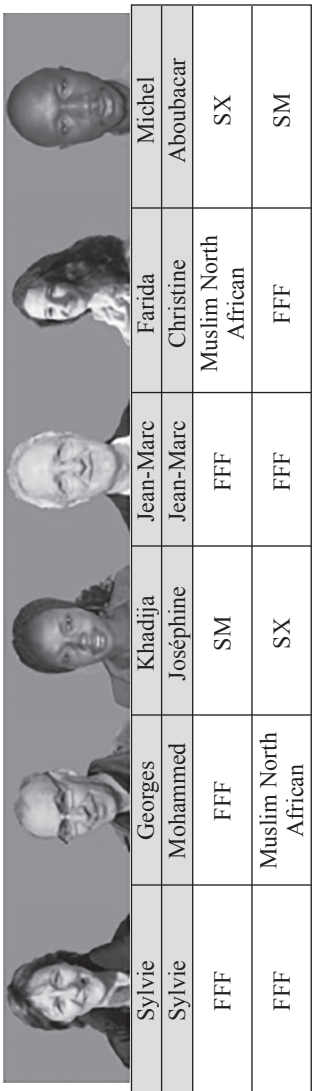


FIGURE 1. – Flowchart of our Games



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

FIGURE 2. – Variations in the Ethno-Religious Identity of the Recipients in the Dictator Game

to each recipient – out of 5 euros allotted to them each time,[15] being assured that the amounts accruing to each recipient would actually be transferred to them. Donors were handed an answer sheet and provided with enough room to record their decisions in a private manner, albeit in a public space. Although recipients appeared sequentially on the screen, donors could observe the entire set of recipients (with their ascribed first names) on their answer sheet as they recorded their allocation decisions.

IV. Experimental Results

The dictator game was played after a socialization phase afforded by the speed chatting game. Prior to the socialization phase, FFF players were less generous (i.e. less unconditionally altruistic) toward SM than toward SX. As ADIDA, LAITIN, and VALFORT [2014] report, holding the number of SM and SX in the game session constant, FFF show taste-based discrimination against SM, and especially those SM with recognizable Muslim names. In this section, we first test whether, holding the number of SM and SX in the game session constant (and relying on an empirical specification similar to the one used by ADIDA, LAITIN, and VALFORT [2014]), FFF donors show a taste for discrimination toward SM recipients they have never met before (the recipients on the screen). Alternatively, we test whether this taste-based discrimination disappears (at least temporarily), as would be predicted by contact theory, subsequent to FFF-SM interactions during the speed-chatting game. We then test for the Hortefeux effect, that is we investigate whether SM out-group salience activates FFF discrimination toward SM in a way that is not matched by SX out-group salience on FFF behavior toward SX.[16] Finally, we test whether FFF expect such activated discrimination from other FFF. More precisely, we investigate whether FFF believe that the impact of SM out-group salience on FFF behavior toward SM recipients is significantly more negative than the impact of SX out-group salience on FFF behavior toward SX recipients.

IV.1. *FFF Behavior Toward SM, Holding the Number of SM Constant*

We estimate Equation (1) over the set of pairs composed of FFF donors and SM and SX recipients:

$$y = a + b.(\text{FFF} \rightarrow \text{SM}) + \mathbf{c}'.\mathbf{X} + d.\text{Face} + \mathbf{e}'.\Pi + \varepsilon, \quad (1)$$

15. Players were not prompted as to why they should donate. Here is the way the 2009 dictator game was introduced to the subjects: "We are going to play one last game. In this game, we are projecting pictures of individuals on the wall. You will see a total of six pictures, sequentially. For each face, we will give you 5 euros. You are to decide how much of these 5 euros (0, 1, 2, 3, 4 or all of it, 5) you wish to give to the individual in the picture. Let me emphasize that these individuals whose pictures are projected are real individuals. They were recruited by our teams the same way you were. We will contact them again after the experiment to give them the amount of money that you decided to give them. Keep in mind however that these individuals will never know who you are or how much you will have given them. Your decision is therefore entirely private. Do you have any questions?"

16. We examine salience only from increasing numbers of SM and SX in the room in order to stay true to our identification strategy. Indeed, comparing the impact of increasing numbers of all Muslim players (North African included) on the amount given by FFF donors to Muslim recipients, with the impact of increasing numbers of all Christian players (Europeans included) on the amount given by FFF donors to Christian recipients would introduce confounds and therefore prevent us from isolating the impact of the out-group salience of Muslims *qua* Muslims.

where y refers to the amount given by the donors to the recipients in the dictator game. The dummy (FFF $\rightarrow$ SM) is equal to 1 if the donor is FFF and the recipient is SM and to 0 if the donor is FFF and the recipient is SX. As a consequence, coefficient b captures the difference between the amount given by FFF donors to SM recipients and the amount given by FFF donors to SX recipients. We also control for a vector of socioeconomic characteristics of FFF donors denoted $\mathbf{X}$. This vector contains information on the gender, age, household income, education and religiosity of FFF players, as well as on whether they know players who participated in previous game sessions. 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). To hold the number of Muslims and matched Christians in the game session constant, we introduce Π, a vector of session fixed effects. Finally, standard errors are clustered at the donor level since donations from the same donor cannot be considered as independent of one other. Note that our results are robust if we cluster the standard errors at the session level instead.

TABLE V presents OLS estimates from three model specifications of Equation (1). In column 1, we control for the ethno-religious identity of the donor and of the recipient (i.e.: we control for the dummy (FFF $\rightarrow$ SM)), as well as for session fixed effects. In column 2, we add face fixed effects. In column 3, we include the socioeconomic characteristics of FFF donors. The non significant coefficient of the dummy (FFF $\rightarrow$ SM) in all three columns suggests that FFF donors do not treat SM and SX recipients differently when one holds the number of SM and SX in the game session constant. It may be that the socialization phase that preceded the dictator game erased FFF taste-based discrimination against all SM, whether or not they interacted with any particular SM during the speed-chatting game. This finding is consistent with contact theory.

IV.2. *FFF Behavior Toward SM When SM Numbers Increase*

Holding the number of SM and SX in the game session constant, FFF donors are as generous toward SM recipients as they are toward SX recipients. Relying on difference-of-means tests, TABLES VI through IX present useful descriptive statistics that provide basic intuitions about whether this result holds once the number of SM and SX in the game session varies. In TABLE VI, we find that a marginal increase in the number of SM, holding the number of SX constant at 1, decreases FFF donations to SM recipients monotonically from 2.83 euros in sessions with 1 SM to 1.60 euros in sessions with 2 SM to 0.75 euros in sessions with 3 SM. In TABLE VII, the marginal increase in the number of SM, holding constant the number of SX at 2, again yields a decrease in FFF donations toward SM. By contrast, TABLES 8 and 9 indicate inconsistent patterns of FFF generosity toward SX when the number of SX increases, holding constant the number of SM. These difference-of-means tests bring to light a consistent discriminatory reaction toward SM recipients on the part of FFF donors as SM numbers increase but no consistent change in FFF behavior toward SX with SX group salience.

Careful scrutiny of the data permits two observations. First, the decrease in FFF generosity toward SM recipients with SM out-group salience is not due to a few outliers. FIGURE 3 provides the distribution of FFF donations to SM recipients when the number of SM increases, holding the number of SX equal to its median value (1 SX). It appears clearly that all FFF donors, not a few of them, take an active part in the decrease in FFF donations to SM recipients

TABLE V. – FFF Generosity Toward SM and SX Recipients, Holding the Number of SM and SX Constant. OLS Analysis

	Dep. var.: FFF donations to SM and SX		
	(1)	(2)	(3)
(1) FFF → SM	0.286	0.389	0.389
	(0.378)	(0.328)	(0.364)
(2) Female			2.304***
			(0.707)
(3) Age			0.008
			(0.013)
(4) Education			0.089
			(0.246)
(5) Household income			−0.188
			(0.135)
(6) Religiosity			0.331
			(0.353)
(7) Knows players from previous sessions			0.214
			(1.336)
Face fixed effects	No	Yes	Yes
Session fixed effects	Yes	Yes	Yes
R^2	0.352	0.427	0.587
Observations	42	42	42

Notes: The table reports OLS estimates. The unit of observation is a dyad formed by a FFF donor and a SM or SX recipient. The dependent variable is categorical. It ranges from 0 (the donor gives nothing to the recipient) to 5 (the donor gives her total endowment to the recipient). "FFF → SM" is a dummy that takes the value 1 if the donor is FFF and the recipient is SM, and the value 0 if the donor is FFF and the recipient is SX. "Female" is a dummy that takes the value 1 if the donor is female and the value 0 otherwise. "Age" is equal to the age of the donor. "Education" is a categorical variable that ranges from 1 (less than primary school completed) to 10 (higher than college degree completed). "Household income" is a categorical variable that ranges from 1 (less than 500 euros monthly) to 11 (more than 7,500 euros monthly). "Religiosity" is a categorical variable that ranges from 1 (never attends religious services) to 7 (attends religious services several times a week). "Knows players from previous sessions" is a dummy that takes the value 1 if the donor knows players who participated in previous game sessions and the value 0 otherwise. The coefficient in row (1) stands for the difference between the amount given by FFF donors to SM recipients and the amount given by FFF donors to SX recipients. Standard errors are clustered at the donor level. *, ** and *** indicate significance at the 10, 5 and 1% levels.

TABLE VI. – Impact of One Additional SM on FFF Donors' Generosity Toward SM, Holding the Number of SX Equal To 1

	Session with 1 SM (a)	Session with 2 SM (b)	Session with 3 SM (c)	Diff (b-a)	Diff (c-b)	Diff (c-a)
Donations to SM	2.83 (N=6)	1.60 (N=5)	0.75 (N=4)	−1.23 p=0.15	−0.85 p=0.19	−2.08 p=0.02

TABLE VII. – Impact of One Additional SM on FFF Donors' Generosity Toward SM, Holding the Number of SX Equal To 2

	Session with 2 SM (a)	Session with 3 SM (b)	Diff (b-a)
Donations to SM	3.50 (N=4)	3.00 (N=2)	−0.50 p=0.72

TABLE VIII. – Impact of One Additional SX on FFF Donors' Generosity Toward SX, Holding the Number of SM Equal To 2

	Session with 1 SX (a)	Session with 2 SX (b)	Diff (b-a)
Donations to SX	0.80 (N=5)	2.50 (N=4)	+1.70 p=0.01

TABLE IX. – Impact of One Additional SX on FFF Donors' Generosity Toward SX, Holding the Number of SM Equal To 3

	Session with 1 SX	Session with 2 SX	Diff
Donations to SX	2.50 (N=4)	2.00 (N=2)	−0.50 p=0.72

when the number of SM reaches its maximum (3 SM) in the game session. Second, the decrease in FFF donations to SM recipients when the number of SM increases is not due to sessions with 3 SM only. As emphasized below in footnote 17, the Hortefeux effect holds when we exclude those sessions.

In TABLE X, we run a regression analysis estimating Equation (2) over the set of pairs composed of FFF donors and SM and SX recipients:

$$\begin{aligned} y \quad = \quad & a + b.(\text{FFF} \rightarrow \text{SM}) + c.(\text{FFF} \rightarrow \text{SM}).\text{nbSM} + d.(\text{FFF} \rightarrow \text{SM}).\text{nbSX} \\ & + e.\text{nbSM} + f.\text{nbSX} + \mathbf{g}'.\mathbf{X} + h.\text{Face} + \varepsilon, \end{aligned} \tag{2}$$

where y refers to the amount given by the donors to the recipients in the dictator game. The dummy $(\text{FFF} \rightarrow \text{SM})$ is equal to 1 if the donor is FFF and the recipient is SM and to 0 if the donor is FFF and the recipient is SX. The variables nbSM and nbSX stand for the number of SM and SX players, respectively, in the session. As a consequence, coefficient b captures the difference between the amount given by FFF donors to SM recipients and the amount given by FFF donors to SX recipients when there are no SM and no SX in the game session. The impact of one additional SM in the room on FFF donations to SM recipients is given by the sum of coefficients c and e. The impact of one additional SX in the room on FFF donations to SX recipients is captured by coefficient f. We address the possibility that FFF participating in sessions with high numbers of SM (SX) systematically differ from FFF participating in sessions with low numbers of SM (SX), by introducing controls for observable individual socioeconomic characteristics (gender, age, education, household income, religiosity and whether they know players who participated in previous game sessions) that are denoted by $\mathbf{X}$. Additionally, in order to run a within-face analysis, we introduce the dummy Face that is again equal to 1 if the recipient is the Senegalese woman (and 0 if the recipient is the Senegalese man). Finally, standard errors are clustered at the donor level since donations from the same donor cannot be considered independent of one another. Note that our results are robust if we cluster the standard errors at the session level instead.

TABLE X, relying on OLS estimates of Equation (2), reports results from three model specifications. In column 1, we control for the ethno-religious identity of the donor and of the recipient, for the number of SM and SX in the game session, as well as for the interactions

TABLE X. – FFF Generosity Toward SM and SX Recipients When SM and SX Numbers Increase. OLS Analysis

	Dep. var.: FFF donations to SM and SX		
	(1)	(2)	(3)
(1) FFF → SM	0.265	2.369*	2.369*
	(1.030)	(1.201)	(1.319)
(2) (FFF → SM)*Number of SM	−0.904**	−0.970**	−0.970**
	(0.416)	(0.388)	(0.427)
(3) (FFF → SM)*Number of SX	1.422*	−0.010	−0.010
	(0.720)	(0.852)	(0.936)
(4) Number of SM	−0.084	−0.051	−0.067
	(0.384)	(0.367)	(0.273)
(5) Number of SX	0.506	1.222**	1.480**
	(0.512)	(0.507)	(0.623)
(6) Female			0.851*
			(0.418)
(7) Age			0.010
			(0.012)
(8) Education			0.151
			(0.202)
(9) Household income			−0.101
			(0.095)
(10) Religiosity			0.346
			(0.301)
(11) Knows players from previous sessions			0.550
			(0.894)
Face fixed effects	No	Yes	Yes
P-value of the Wald test: (2)+(4)=0	0.01	0.01	0.01
P-value of the Wald test: (5)=0	0.33	0.03	0.03
P-value of the Wald test: (2)+(4)=(5)	0.02	0.00	0.00
R^2	0.308	0.364	0.563
Observations	42	42	42

Notes: The table reports OLS estimates. The unit of observation is a dyad formed by a FFF donor and a SM or SX recipient. The dependent variable is categorical. It ranges from 0 (the donor gives nothing to the recipient) to 5 (the donor gives her total endowment to the recipient). "FFF → SM" is a dummy that takes the value 1 if the donor is FFF and the recipient is SM, and the value 0 if the donor is FFF and the recipient is SX. "Number of SM" is equal to the number of SM in the game session. "Number of SX" is equal to the number of SX in the game session. "Female" is a dummy that takes the value 1 if the donor is female and the value 0 otherwise. "Age" is equal to the age of the donor. "Education" is a categorical variable that ranges from 1 (less than primary school completed) to 10 (higher than college degree completed). "Household income" is a categorical variable that ranges from 1 (less than 500 euros monthly) to 11 (more than 7,500 euros monthly). "Religiosity" is a categorical variable that ranges from 1 (never attends religious services) to 7 (attends religious services several times a week). "Knows players from previous sessions" is a dummy that takes the value 1 if the donor knows players who participated in previous game sessions and the value 0 otherwise. The sum of the coefficients in rows (2) and (4) stands for the impact on the amount given by FFF donors to SM recipients when there are no SM and no SX donors in the session, of having one additional SM in the game session. The coefficient in row (5) stands for the impact on the amount given by FFF donors to SX recipients when there are no SM and no SX donors in the session, of having one additional SX in the game session. Standard errors are clustered at the donor level. *, ** and *** indicate significance at the 10, 5 and 1% levels.

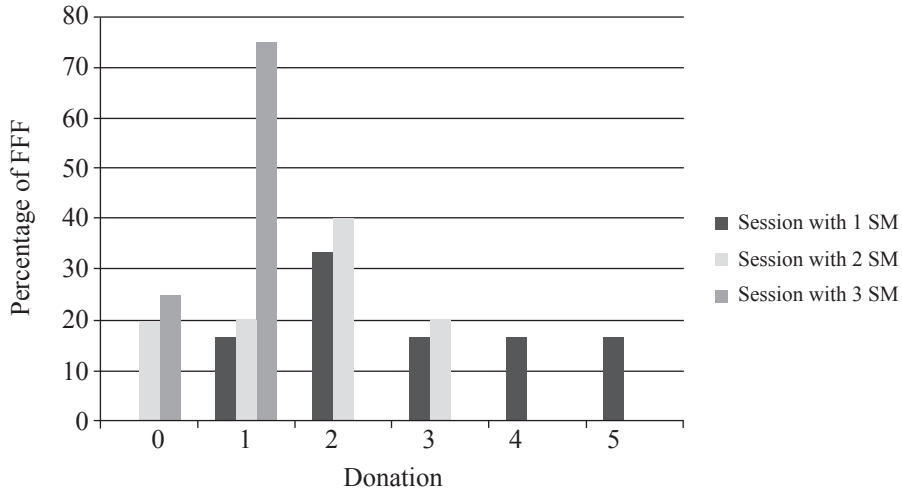


FIGURE 3. – Distribution of FFF Donations To SM Recipients When the Number of SM Increases, Holding the Number of SX Equal To 1

between these two sets of variables. In column 2, we add the Face dummy in order to run a within-face analysis. In column 3, we include the socioeconomic characteristics of FFF donors. Our results first show that, in all three columns, having one more SM in the room significantly decreases FFF donations to SM recipients, as revealed by the sum of the coefficients *c* and *e* that appear in rows (2) and (4) in TABLE X (see the p-value of the first Wald test reported at the bottom of TABLE X). Second, we observe that the impact of having one more SX in the room on FFF donations to SX recipients is positive, though not robustly significant, as shown by the coefficient *f* that appears in row (5) in TABLE X. Third, the p-value of the last Wald test reported at the bottom of TABLE X indicates that the difference between these two impacts is strongly significant across all model specifications, confirming our main result that SM out-group salience activates FFF discrimination of SM recipients in a way that is not matched by the effect of SX out-group salience on FFF behavior toward SX.[17] Note that by increasing the number of Muslims in the game sessions, we give an opportunity for both contact and group threat theories to shape individual behavior: an increase in the number of Muslims increases opportunities for interaction and contact; but it also introduces the prospect of a Muslim threat. If contact theory dominates, we should observe a decrease in FFF taste-based discrimination toward Muslims. If group threat theory dominates, we should instead observe an increasing divergence between the group seen as the threat (racially and religiously different) and the group that is seen as less threatening (only racially different). Our findings suggest that the latter wins out:

17. SM and SX out-group salience has a differential impact on FFF generosity toward SM and SX recipients respectively. However, FFF out-group salience does not influence SM and SX generosity toward FFF recipients differently. (Results available upon request.)

the behavior we observe toward the Muslim minority is consistent with group threat theory rather than intergroup contact theory.[18]

IV.3. *FFF Beliefs About Other FFF Behavior Toward SM When SM Numbers Increase*

Are FFF players aware of the Hortefeux effect on FFF behavior? In other words, do FFF believe that the impact of SM out-group salience on FFF behavior toward SM recipients is significantly more negative than the impact of SX out-group salience on FFF generosity toward SX recipients? To answer this question, we rely on the strategic dictator game which immediately followed the dictator game we have been analyzing so far. 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 advertize that this model would specifically be FFF). Players were also told that whoever guessed closest to the model's actual decisions would receive a price of 30 euros. Since the model was FFF, FFF players were likely to perceive this model as someone like themselves. The strategic dictator game therefore helps us determine FFF beliefs about FFF behavior toward SM/SX for different levels of SM/SX out-group salience.

OLS estimates are presented in TABLE XI which reports results from the three model specifications already presented in TABLE X. First, we draw the reader's attention to coefficient f in row (5), which indicates across all model specifications that FFF believe other FFF are significantly more generous to SX when the number of SX increases. Second, we examine the effect of SM out-group salience on FFF beliefs about FFF donations to SM recipients (the sum of coefficients c and e that appear in rows (2) and (4) respectively). This effect is negative (although not significantly so). Third, the Wald test reported at the bottom of the table indicates that the difference between these two effects is strongly significant across all model specifications. Overall, these results indicate that FFF correctly believe that the impact of SM out-group salience on FFF behavior toward SM recipients is significantly more negative than the impact of SX out-group salience on FFF generosity toward SX recipients. That FFF believe other members of their group behave like them has an important implication. It may provide implicit justification for all FFF to act in conformity with the expected prejudicial behavior of in-group members with an increase in the size of the Muslim out-group. In other words, FFF may consider discriminatory behavior toward Muslims in an environment with several Muslims around them as normal – so normal that former Minister Hortefeux could state it in a self-assured and unreflective manner.

18. We address the concern that the Hortefeux effect might be driven by an asymmetry between SM out-group salience (going from 1 to 3 SM) and SX out-group salience (going from 1 to 2 SX). First, TABLE VI, columns (a) and (b) indicate that FFF donations to SM when SM numbers increase from 1 to 2 decrease from 2.83 euros to 1.60 euros, a substantively large though not significant effect (p=0.15). Therefore, the pattern that characterizes the Hortefeux effect holds when SM out-group salience is limited to an increase from 1 to 2 SM. Second, TABLE IX suggests that including cases where the number of SM in the session is equal to 3 might actually work against finding an Hortefeux effect. Indeed, FFF donations to SX, when SX out-group salience increases and when the number of SM in the session is equal to 3, *decrease* from 2.50 euros to 2 euros. Finally, we re-run the analysis in TABLE X, excluding sessions where the number of SM is equal to 3. This reduces our power from 42 to 30 observations. We find that our substantive results hold, though their statistical significance weakens.

TABLE XI. – FFF Guesses About Other FFF Generosity Toward SM and SX Recipients When SM and SX Numbers Increase. OLS Analysis

	Dep. var.: FFF guesses about FFF donations to SM and SX		
	(1)	(2)	(3)
(1) FFF $\rightsquigarrow$ FFF $\rightarrow$ SM	0.849	3.447**	3.447**
	(0.878)	(1.485)	(1.632)
(2) (FFF $\rightsquigarrow$ FFF $\rightarrow$ SM)*Number of SM	−0.464	−0.545	−0.545
	(0.360)	(0.318)	(0.350)
(3) (FFF $\rightsquigarrow$ FFF $\rightarrow$ SM)*Number of SX	0.283	−1.485	−1.485
	(0.512)	(0.948)	(1.041)
(4) Number of SM	0.108	0.149	0.254
	(0.416)	(0.387)	(0.298)
(5) Number of SX	1.349**	2.233***	2.780***
	(0.566)	(0.659)	(0.829)
(6) Female			0.997**
			(0.362)
(7) Age			−0.008
			(0.012)
(8) Education			0.023
			(0.215)
(9) Household income			0.018
			(0.086)
(10) Religiosity			0.352
			(0.286)
(11) Knows players from previous sessions			−1.582**
			(0.714)
Face fixed effects	No	Yes	Yes
P-value of the Wald test: (2)+(4)=0	0.33	0.31	0.35
P-value of the Wald test: (5)=0	0.03	0.00	0.00
P-value of the Wald test: (2)+(4)=(5)	0.02	0.00	0.00
R^2	0.269	0.350	0.563
Observations	42	42	42

Notes: The table reports OLS estimates. The unit of observation is a triad formed by a FFF guesser, a FFF donor and a SM or SX recipient. The dependent variable is categorical. It 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 $\rightsquigarrow$ FFF $\rightarrow$ SM" is a dummy that takes the value 1 if the guesser is FFF, the donor is FFF and the recipient is SM, and the value 0 if the guesser is FFF, the donor is FFF and the recipient is SX. "Number of SM" is equal to the number of SM in the game session. "Number of SX" is equal to the number of SX in the game session. "Female" is a dummy that takes the value 1 if the donor is female and the value 0 otherwise. "Age" is equal to the age of the donor. "Education" is a categorical variable that ranges from 1 (less than primary school completed) to 10 (higher than college degree completed). "Household income" is a categorical variable that ranges from 1 (less than 500 euros monthly) to 11 (more than 7,500 euros monthly). "Religiosity" is a categorical variable that ranges from 1 (never attends religious services) to 7 (attends religious services several times a week). "Knows players from previous sessions" is a dummy that takes the value 1 if the donor knows players who participated in previous game sessions and the value 0 otherwise. The sum of the coefficients in rows (2) and (4) stands for the impact on FFF guesses about the amount given by FFF donors to SM recipients when there are no SM and no SX donors in the session, of having one additional SM in the game session. The coefficient in row (5) stands for the impact on on FFF guesses about the amount given by FFF donors to SX recipients when there are no SM and no SX donors in the session, of having one additional SX in the game session. Standard errors are clustered at the guesser level. *, ** and *** indicate significance at the 10, 5 and 1% levels.

V. Investigating the Mechanisms

Understanding the mechanism underlying the Hortefeux effect constitutes the second objective of this paper. In this section, we adapt a complete information rational model augmented with well-behaved other-regarding preferences as in ANDREONI and MILLER [2002]. This model offers two possible explanations for the Hortefeux effect. First, the decrease in FFF generosity toward Muslims when Muslim numbers increase may be a response to a change in the total donation received by Muslims from non-FFF donors when Muslim numbers increase. In particular, this decrease may result from a change in the individual behavior of non-FFF (and notably Muslim) donors when Muslim numbers increase. For instance, FFF can be less generous toward Muslims with Muslim out-group salience if, in that context, Muslims are more generous toward each other and/or less generous toward FFF. In the former case, FFF will free-ride on Muslims' in-group generosity. In the latter case, FFF will compensate members of their in-group for Muslims' lower generosity toward FFF, thereby lowering their generosity toward Muslims. Second, the decrease in FFF generosity toward Muslims when Muslim numbers increase may result from changes in FFF preferences and notably from the activation of FFF taste-based discrimination against Muslims when FFF are surrounded by Muslims. In that context, the positive weight that FFF assign to the well-being of Muslims is a decreasing function of the relative size of the Muslim minority. We then run an empirical test to identify which of these two mechanisms (or both) is (are) at work. Our results show that the decrease in FFF generosity toward Muslims when Muslim numbers increase is not due to a change in the total donations received by Muslims from non-FFF donors when Muslim numbers increase. In particular, we find that FFF are the *only* donors in the dictator game to change their donations when Muslim numbers increase. Notably, SM donors do not change their donations with Muslim out-group salience. Evidence is therefore consistent with the fact that the Hortefeux effect derives from an activation of FFF distaste toward Muslims with Muslim out-group salience.

V.1. *A Rational Model to Account for FFF Donors' Behavior*

Let us consider the following objective function of a FFF donor:

$$U = u(c, \omega_1\theta_1, ..., \omega_4\theta_4),$$

where u is increasing with respect to all its arguments, and concave. The first argument c stands for the consumption of the FFF donor and is given by $c = R - \sum_{j=1}^{j=4} y_j$ where R is the total endowment received by the FFF donor in the dictator game and y_j stands for the donation of the FFF donor to the recipient of ethno-religious type j. As shown in FIGURE 2, each game session is characterized by 6 recipients who are of 4 different ethno-religious types: 3 are FFF, 1 is SM, 1 is SX and 1 is (Muslim) North African. For the sake of simplicity and without loss of generality, we assume in this model that there are as many recipients as there are ethno-religious types, hence 4 recipients. In the other arguments of function u, ω_j ($j = 1, ..., 4$) stands for the weight that the FFF donor assigns to the consumption of the recipient of ethno-religious type j. The consumption of the recipient of ethno-religious type j is given by $\theta_j = y_j + Y_j + Z_j$, where Y_j refers to the donations of all other FFF donors to the recipient of ethno-religious type j, while Z_j refers to the donations of all other non-FFF donors to the recipient of ethno-religious type j.

In what follows, we analyze the optimal behavior of FFF donors when the donations of non-FFF donors are given. Consistent with our experimental setup where players are not allowed to communicate with each other, we assume that FFF donors play non cooperatively. More precisely, each FFF donor chooses the vector of donations $\mathbf{y} = (y_1, y_2, y_3, y_4)$. For each FFF donor, the first order condition for the optimal choice of $\mathbf{y}$ is given by

$$-\frac{\partial u(\cdot)}{\partial c} + \omega_j \frac{\partial u(\cdot)}{\partial(\omega_j \theta_j)} = 0, j = 1, .., 4. \tag{3}$$

Let us restrict the analysis to the case of a unique and symmetric equilibrium (i.e.: an equilibrium where all FFF donors make the same donations). Thus $\theta_j = Ny_j + Z_j$, where N represents the number of FFF donors. In that setting, Equation (3) shows that $\mathbf{y}$ will change with an increase in the number of SM if $\mathbf{Z} = (Z_1, ..., Z_4)$ changes, meaning that changes in FFF behaviors are a response to changes in the total donation received by some of the recipients (and notably SM recipients) from non-FFF donors when SM numbers increase. More precisely, the Hortefeux effect can emerge if the total donation received by SM recipients from non-FFF donors changes with SM group salience. In particular, we can observe the Hortefeux effect if non-FFF donors (and notably SM donors) change their individual behavior when SM numbers increase. For instance, if SM intra-group generosity increases with SM group salience, FFF donors might want to free-ride on SM donors' generosity toward SM recipients with SM group salience. Similarly, if SM generosity toward FFF recipients decreases with SM group salience, FFF donors might want to compensate FFF recipients (and therefore give less to SM recipients) with SM out-group salience.

Alternatively, the Hortefeux effect can emerge if the positive weight that FFF donors assign to the well-being of SM recipients is a decreasing function of the relative size of the SM minority. As Equation (3) shows, $\mathbf{y}$ can also change with an increase in the number of SM if $\Omega = (\omega_1, ..., \omega_4)$ changes.[19]

V.2. *An Empirical Test to Identify the Mechanism at Work*

Does the Hortefeux effect emerge because FFF donors respond to changes in the total donation received by some of the recipients (and notably SM recipients) from non-FFF donors when SM numbers increase? Or does it emerge because FFF donors assign a lower weight to the well-being of SM recipients when SM number increase? To rule out the possibility that changes in

19. Note that these predictions rely on the assumption that equilibrium $\mathbf{y}$ is unique. If this assumption is relaxed, then changes in FFF behaviors with an increase in the number of SM could simply stem from the fact that FFF donors coordinate on a different equilibrium when SM numbers increase (as compared to the equilibrium they play when there are fewer SM around them). More precisely, if several equilibria exist, the Hortefeux effect can emerge because FFF donors coordinate on the equilibrium "giving less to SM recipients" when SM numbers increase. This situation makes sense in the case of strategic complementarity between FFF donors. Mathematically, strategic complementarity between FFF donors implies that:

$$\frac{\mathrm{d}^2 u(\cdot)}{\mathrm{d}y_j \mathrm{d}Y_j} = -\omega_j \frac{\partial^2 u(\cdot)}{\partial c \partial(\omega_j \theta_j)} + \omega_j^2 \frac{\partial^2 u(\cdot)}{\partial^2(\omega_j \theta_j)} > 0. \tag{4}$$

The concavity of u implies that $\frac{\partial^2 u(\cdot)}{\partial^2(\omega_j \theta_j)} < 0$. Inequality (4) can therefore be satisfied only with an unrealistic condition: *viz.*, if $\frac{\partial^2 u(\cdot)}{\partial c \partial(\omega_j \theta_j)} < 0$, that is if the marginal utility of consumption of the FFF donor decreases with the donations received by the recipient of ethno-religious type j.

FFF behavior are a response to changes in the total donation received by some of the recipients from non-FFF donors, it suffices to show that, controlling for the number of SX in the game session:

$$\frac{\mathrm{d}Z_j}{\mathrm{d}N_{SM}} = 0 \text{ for all } j,$$

where N_{SM} stands for the number of SM in the game session.

Let us test whether this sufficient condition holds, that is whether the total donation received from non-FFF donors by each of the four ethno-religious types of recipients is unaffected by the number of SM in the game session. To do so, we estimate Equation (5):

$$\begin{aligned} y = {} & a + b.(\text{non-FFF} \rightarrow \text{SM}) + c.(\text{non-FFF} \rightarrow \text{SM}).\text{nbSM} + d.(\text{non-FFF} \rightarrow \text{SM}).\text{nbSX} \\ & + e.(\text{non-FFF} \rightarrow \text{FFF}) + f.(\text{non-FFF} \rightarrow \text{FFF}).\text{nbSM} + g.(\text{non-FFF} \rightarrow \text{FFF}).\text{nbSX} \\ & + h.(\text{non-FFF} \rightarrow \text{NA}) + i.(\text{non-FFF} \rightarrow \text{NA}).\text{nbSM} + j.(\text{non-FFF} \rightarrow \text{NA}).\text{nbSX} \\ & + k.\text{nbSM} + l.\text{nbSX} + \varepsilon, \end{aligned} \tag{5}$$

where y refers to the total per session donation received by the recipients from non-FFF donors, meaning that the unit of observation in this equation is the recipient-session pair. The dummy $(\text{non-FFF} \rightarrow \text{SM})$ is equal to 1 if the recipient is SM, and to 0 otherwise. The dummy $(\text{non-FFF} \rightarrow \text{FFF})$ is equal to 1 if the recipient is FFF, and to 0 otherwise. The dummy $(\text{non-FFF} \rightarrow \text{NA})$ is equal to 1 if the recipient is North African, and to 0 otherwise.

The total per session donation received by SX recipients from non-FFF donors when there are no SM and no SX donors in the session is the reference category. Therefore, coefficient b captures the difference between the total donation received by SM recipients from non-FFF donors and the total donation received by SX recipients from non-FFF donors, when there are no SM and no SX donors in the game session; coefficient e captures the difference between the total donation received by FFF recipients from non-FFF donors and the total donation received by SX recipients from non-FFF donors, when there are no SM and no SX donors in the game session; coefficient h captures the difference between the total donation received by North-African recipients from non-FFF donors and the total donation received by SX recipients from non-FFF donors, when there are no SM and no SX donors in the game session.

The variables nbSM and nbSX stand for the number of SM and SX players, respectively, in the game session. Therefore, the marginal impact of one additional SM in the room on the total donation received by SM recipients from non-FFF donors (as compared to the total donation received by SM recipients from non-FFF donors when there are no SM and no SX donors in the session) is given by the sum of coefficients c and k; the marginal impact of one additional SM in the room on the total donation received by FFF recipients from non-FFF donors (as compared to the total donation received by FFF recipients from non-FFF donors when there are no SM and no SX donors in the session) is given by the sum of coefficients f and k; the marginal impact of one additional SM in the room on the total donation received by North African recipients from non-FFF donors (as compared to the total donation received by North African recipients from non-FFF donors when there are no SM and no SX donors in the session) is given by the sum of coefficients i and k; the marginal impact of one additional SM in the room on the total donation received by SX recipients from non-FFF donors (as compared to the total donation received by

TABLE XII. – Total Donation Received by All Ethno-Religious Types of Recipients from non-FFF Donors When SM and SX Numbers Increase. OLS Analysis

	Dep. var.: Total donation received by all recipients from non-FFF donors
(1) non-FFF → SM	−5.865
	(5.769)
(2) (non-FFF → SM)*Number of SM	0.788
	(2.531)
(3) (non-FFF → SM)*Number of SX	2.846
	(3.068)
(4) non-FFF → FFF	−3.808
	(2.983)
(5) (non-FFF → FFF)*Number of SM	0.936
	(1.614)
(6) (non-FFF → FFF)*Number of SX	0.923
	(2.043)
(7) non-FFF → NA	0.519
	(2.720)
(8) (non-FFF → NA)*Number of SM	−0.673
	(0.874)
(9) (non-FFF → NA)*Number of SX	−0.308
	(0.809)
(10) Number of SM	−0.712
	(2.150)
(11) Number of SX	−0.154
	(2.331)
P-value of the Wald test: (2)+(10)=0	0.96
P-value of the Wald test: (5)+(10)=0	0.89
P-value of the Wald test: (8)+(10)=0	0.63
P-value of the Wald test: (10)=0	0.75
R^2	0.069
Observations	48

Notes: The table reports OLS estimates. The unit of observation is the recipient. The dependent variable is categorical. It ranges from 6 to 19. "non-FFF → SM" is a dummy that takes the value 1 if the recipient is SM, and 0 otherwise. "non-FFF → FFF" is a dummy that takes the value 1 if the recipient is FFF, and 0 otherwise. "non-FFF → NA" is a dummy that takes the value 1 if the recipient is North African, and 0 otherwise. "Number of SM" is equal to the number of SM in the game session. "Number of SX" is equal to the number of SX in the game session. The sum of the coefficients in rows (2) and (10) stands for the impact on the total donation received by SM recipients from non-FFF donors when there are no SM and no SX donors in the session, of having one additional SM in the game session. The sum of the coefficients in rows (5) and (10) stands for the impact on the total donation received by FFF recipients from non-FFF donors when there are no SM and no SX donors in the session, of having one additional SM in the game session. The sum of the coefficients in rows (8) and (10) stands for the impact on the total donation received by North African recipients from non-FFF donors, of having one additional SM in the game session. The coefficient in row (10) stands for the impact on the total donation received by SX recipients from non-FFF donors when there are no SM and no SX donors in the session, of having one additional SM in the game session. Standard errors are clustered at the session level. *, ** and *** indicate significance at the 10, 5 and 1% levels.

SX recipients from non-FFF donors when there are no SM and no SX donors in the session) is given by coefficient k. Finally, standard errors are clustered at the session level.

TABLE XII presents the OLS estimates of Equation (5). The p-values of the Wald tests reported at the bottom of TABLE XII show that the total donation received by each of the four ethno-religious types of recipients from non-FFF donors is not impacted by the number of SM in the game session. In other words, in this full information model, the Hortefeux effect is not a response of FFF donors to changes in the total donation received by some of the recipients (and notably SM recipients) from non-FFF donors when SM numbers increase.

More specifically, if one estimates Equation (5) by defining y as the amount given by each non-FFF donor to the recipients in the dictator game (meaning that the unit of observation is not the recipient anymore, but the dyad formed by a non-FFF donor and a recipient), one finds that non-FFF donors do not change their individual behavior when SM numbers increase. TABLE XIII presents results from three model specifications for OLS estimates of this new equation, where the standard errors are clustered at the donor level (note that our results are robust if we cluster the standard errors at the session level instead). In column 1, we control for the ethno-religious identity of the donor and of the recipient, for the number of SM and SX in the game session, as well as for the interactions between these two sets of variables. In column 2, we include the socioeconomic characteristics of non-FFF donors. Since this inclusion generates a reduction in the sample size from 354 observations to 294 observations due to missing values for the income, education and religiosity of some of the non-FFF donors, we run a multiple imputation analysis in column 3. The p-values of the Wald tests reported at the bottom of TABLE XIII show that the amount given by non-FFF donors to each of the four ethno-religious types of recipients is not impacted by the number of SM in the game session.

Put differently, FFF donors are the only donors in the dictator game to change their behavior when Muslim numbers increase. In our complete information framework, they are not therefore responding to changes in the individual behavior of non-FFF donors with SM out-group salience. Notably, the Hortefeux effect does not emerge because SM intra-group generosity increases with SM group salience (see the table in Appendix A1 which shows that SM in-group generosity in fact *decreases* with SM group salience, though this result is not robustly significant). Neither does the Hortefeux effect emerge because SM generosity toward FFF recipients decreases with SM group salience (see the table in Appendix A2 which shows that the impact of SM out-group salience on SM generosity toward FFF recipients is neither consistent nor robustly significant). As a consequence, relying on Equation (3), the Hortefeux effect likely emerges because SM out-group salience has an impact on Ω, the vector of weights that FFF donors assign to the consumption of the different ethno-religious types of recipients. More precisely, evidence is consistent with the fact that the Hortefeux effect derives from an activation of FFF stinginess toward Muslims with Muslim out-group salience.

Note that one could object to the complete information assumption, and conjecture that the Hortefeux effect arises because FFF donors wrongly anticipate that the total donation received by some of the recipients (and notably SM recipients) from non-FFF donors changes when Muslim numbers increase.[20] As shown by NADEAU and LEVINE [1993] and by ALBA, RUMBAUT, and

20. We thank an anonymous referee for bringing this issue to our attention.

TABLE XIII. – Non-FFF Generosity Toward All Ethno-Religious Types of Recipients When SM and SX Numbers Increase. OLS Analysis

	Dep. var.: Non-FFF donations to all types of recipients		
	(1)	(2)	(3)
(1) non-FFF → SM	−0.794 (0.607)	−0.605 (0.717)	−0.791 (0.616)
(2) (non-FFF → SM)*Number of SM	0.107 (0.248)	0.252 (0.346)	0.112 (0.252)
(3) (non-FFF → SM)*Number of SX	0.377 (0.333)	0.101 (0.437)	0.370 (0.338)
(4) non-FFF → FFF	−0.529 (0.472)	−0.447 (0.519)	−0.530 (0.476)
(5) (non-FFF → FFF)*Number of SM	0.131 (0.239)	0.243 (0.233)	0.132 (0.241)
(6) (non-FFF → FFF)*Number of SX	0.126 (0.273)	−0.066 (0.233)	0.126 (0.276)
(7) non-FFF → NA	0.050 (0.579)	0.321 (0.655)	0.051 (0.585)
(8) (non-FFF → NA)*Number of SM	−0.105 (0.283)	−0.263 (0.363)	−0.100 (0.287)
(9) (non-FFF → NA)*Number of SX	−0.006 (0.346)	0.054 (0.402)	−0.015 (0.351)
(10) Number of SM	−0.037 (0.272)	−0.008 (0.310)	0.009 (0.241)
(11) Number of SX	−0.246 (0.354)	−0.004 (0.402)	−0.245 (0.351)
(12) Female		0.491** (0.244)	0.354 (0.237)
(13) Age		0.025* (0.013)	0.032** (0.013)
(14) Education		0.112** (0.045)	0.062 (0.047)
(15) Household income		−0.015 (0.060)	0.001 (0.057)
(16) Religiosity		0.069 (0.067)	0.058 (0.058)
(17) Knows players from previous sessions		−0.291 (0.336)	−0.036 (0.275)
Multiple Imputation Analysis	No	No	Yes
P-value of the Wald test: (2)+(10)=0	0.72	0.37	0.55
P-value of the Wald test: (5)+(10)=0	0.64	0.26	0.41
P-value of the Wald test: (8)+(10)=0	0.54	0.28	0.67
P-value of the Wald test: (10)=0	0.89	0.98	0.97
R^2	0.010	0.129	0.102
Observations	354	294	354

Notes: The table reports OLS estimates. The unit of observation is a dyad formed by a non-FFF donor and a recipient. The dependent variable is categorical. It ranges from 0 (the donor gives nothing to the recipient) to 5 (the donor gives her total endowment to the recipient). "non-FFF → SM" is a dummy that takes the value 1 if the donor is non-FFF and the recipient is SM, and 0 otherwise. "non-FFF → FFF" is a dummy that takes the value 1 if the donor is non-FFF and the recipient is FFF, and 0 otherwise. "non-FFF → NA" is a dummy that takes the value 1 if the donor is non-FFF and the recipient is North African, and 0 otherwise. "Number of SM" is equal to the number of SM in the game session. "Number of SX" is equal to the number of SX in the game session. "Female" is a dummy that takes the value 1 if the donor is female and the value 0 otherwise. "Age" is equal to the age of the donor. "Education" is a categorical variable that ranges from 1 (less than primary school completed) to 10 (higher than college degree completed). "Household income" is a categorical variable that ranges from 1 (less than 500 euros monthly) to 11 (more than 7,500 euros monthly). "Religiosity" is a categorical variable that ranges from 1 (never attends religious services) to 7 (attends religious services several times a week). "Knows players from previous sessions" is a dummy that takes the value 1 if the donor knows players who participated in previous game sessions and the value 0 otherwise. The sum of the coefficients in rows (2) and (10) stands for the impact on the amount given by FFF donors to SM recipients when there are no SM and no SX donors in the session, of having one additional SM in the game session. The sum of the coefficients in rows (5) and (10) stands for the impact on the amount given by FFF donors to FFF recipients when there are no SM and no SX donors in the session, of having one additional SM in the game session. The sum of the coefficients in rows (8) and (10) stands for the impact on the amount given by FFF donors to North African recipients when there are no SM and no SX donors in the session, of having one additional SM in the game session. The coefficient in row (10) stands for the impact on the amount given by FFF donors to SX recipients when there are no SM and no SX donors in the session, of having one additional SM in the game session. Standard errors are clustered at the donor level. *, ** and *** indicate significance at the 10, 5 and 1% levels.

MAROTZ [2005], such misrepresentation of the out-group is not rare. Unfortunately, we do not have data on FFF beliefs about these total donations during our games.[21]

VI. Robustness Checks

Two factors could challenge our results. First, even though Senegalese players were exogenously assigned to sessions – and thus could not have self-selected into sessions comprised of a greater number of their co-ethnics – it could still be the case (due solely to bad luck) that systematic differences characterize the SM (SX) participating in sessions with higher numbers of SM (SX) from those participating in sessions with lower numbers of SM (SX). It is therefore necessary to test whether our results are robust to controls for the average socioeconomic characteristics of the SM and SX players in the game session and notably for their average gender composition, age, education, household income, religiosity and answer to whether they know players from previous sessions. Second, the number of SM and the number of SX in the session is not necessarily independent of the number of non-SM players of Muslim background and of non-SX players of Christian background respectively. To rule out the possibility that SM and SX out-group salience simply captures the effect of the group salience of these other players, we must test whether our results are robust to controls for the distribution of these other players in the game session. In this section, we implement these two robustness checks for each of our three main results: (i) the Hortefeux effect; (ii) FFF beliefs that the impact of SM out-group salience on FFF generosity toward SM recipients is significantly more negative than the impact of SX out-group salience on FFF generosity toward SX recipients; and (iii) the unchanged total donation received by each of the four ethno-religious type of recipients from non-FFF donors when SM numbers increase .

VI.1. *The Hortefeux Effect*

Is the Hortefeux effect robust to controls for the average socioeconomic characteristics of SM and SX players and for the out-group salience of other players of Muslim and Christian backgrounds? Results from our robustness checks are reported in TABLE XIV. In columns 1 to 6, we control for the average gender composition, age, education, household income, religiosity and answer to whether they know players from previous sessions respectively. In column 7, we control for the out-group salience of other players of Muslim and Christian backgrounds. More precisely, column 7 provides the OLS estimates for the following version of Equation (2):

$$y = a + b.(\text{FFF} \rightarrow \text{SM}) + c.(\text{FFF} \rightarrow \text{SM}).\text{nbSM} + d.(\text{FFF} \rightarrow \text{SM}).\text{nbSX} + e.\text{nbSM} + f.\text{nbSX} + \mathbf{g}'.\mathbf{X} + h.Face + i.(\text{FFF} \rightarrow \text{SM}).\text{nbOTHMUS} + j.\text{nbOTHMUS} + \varepsilon,$$

21. However, an experiment that we conducted in 2010 reveals that FFF expect the *same* intragroup generosity among SM and SX as well as the *same* generosity of SM and SX donors toward FFF recipients. These findings suggest that the Hortefeux effect is not due to mistaken beliefs on the part of FFF such as: (i) SM intragroup generosity is higher than SX intragroup generosity (meaning that there is more room for free riding on SM intragroup generosity when SM numbers increase than on SX intragroup generosity when SX numbers increase); and/or (ii) SM donors are less generous toward FFF recipients than are SX donors (meaning that there is more need to compensate FFF recipients when SM numbers increase than when SX numbers increase).

TABLE XIV. – FFF Generosity Toward SM and SX Recipients When SM and SX Numbers Increase. Robustness Checks

	Dep. var.: FFF donations to SM and SX						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1) FFF → SM	2.369*	2.369*	2.369*	2.369*	2.369*	2.369*	0.075
	(1.367)	(1.367)	(1.367)	(1.367)	(1.367)	(1.367)	(1.590)
(2) (FFF → SM)*Number of SM	−0.970**	−0.970**	−0.970**	−0.970**	−0.970**	−0.970**	−0.680
	(0.442)	(0.442)	(0.442)	(0.442)	(0.442)	(0.442)	(0.434)
(3) (FFF → SM)*Number of SX	−0.010	−0.010	−0.010	−0.010	−0.010	−0.010	0.586
	(0.970)	(0.970)	(0.970)	(0.970)	(0.970)	(0.970)	(0.862)
(4) Number of SM	−0.085	−0.083	0.051	0.078	0.016	−0.239	−0.357
	(0.297)	(0.284)	(0.303)	(0.436)	(0.279)	(1.038)	(0.478)
(5) Number of SX	1.650***	1.080*	1.527	1.380**	0.414	1.506**	0.783
	(0.546)	(0.618)	(1.191)	(0.637)	(0.655)	(0.677)	(1.205)
(6) Female	2.160***	1.124**	0.856	0.824	1.771**	0.892	0.605
	(0.574)	(0.528)	(0.720)	(0.574)	(0.628)	(0.634)	(0.891)
(7) Age	0.005	0.014	0.008	0.010	0.006	0.008	0.010
	(0.013)	(0.010)	(0.013)	(0.014)	(0.013)	(0.014)	(0.012)
(8) Education	0.225	0.117	0.045	0.102	0.087	0.154	0.094
	(0.198)	(0.188)	(0.181)	(0.221)	(0.191)	(0.237)	(0.249)
(9) Household income	−0.159	−0.146	−0.120	−0.089	−0.161	−0.101	−0.111
	(0.111)	(0.119)	(0.113)	(0.113)	(0.116)	(0.099)	(0.108)
(10) Religiosity	0.495*	0.292	0.193	0.264	0.303	0.361	0.269
	(0.275)	(0.243)	(0.245)	(0.339)	(0.245)	(0.372)	(0.332)
(11) Knows players from previous sessions	−0.215	0.887	1.287	0.467	0.669	0.512	1.200
	(1.111)	(0.941)	(1.345)	(0.977)	(1.033)	(1.075)	(1.981)
Face fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Average gender of SM and SX	Yes	No	No	No	No	No	No
Average age of SM and SX	No	Yes	No	No	No	No	No
Average education of SM and SX	No	No	Yes	No	No	No	No
Average household income of SM and SX	No	No	No	Yes	No	No	No
Average religiosity of SM and SX	No	No	No	No	Yes	No	No
Average answer to the "know past players" question of SM and SX	No	No	No	No	No	Yes	No
Out-group salience of other Muslim and Christian players	No	No	No	No	No	No	Yes
P-value of the Wald test: (2)+(4)=0	0.02	0.01	0.01	0.05	0.01	0.27	0.09
P-value of the Wald test: (5)=0	0.01	0.10	0.21	0.04	0.53	0.04	0.52
P-value of the Wald test: (2)+(4)=(5)	0.00	0.02	0.07	0.00	0.05	0.06	0.07
R^2	0.641	0.605	0.624	0.594	0.652	0.588	0.604
Observations	42	42	42	42	42	42	42

Notes: The table reports OLS estimates. The unit of observation is a dyad formed by a FFF donor and a SM or SX recipient. Standard errors are clustered at the donor level. *, ** and *** indicate significance at the 10, 5 and 1% levels.

where the variable nbOTHMUS stands for the number of other players of Muslim background. As a consequence, coefficient *b* captures the difference between the amount given by FFF donors to SM recipients and the amount given by FFF donors to SX recipients with no SX and no Muslim players in the game session.

The Hortefeux effect is robust to the control for the average socioeconomic characteristics of SM and SX players in each game session and to the control for the effect of the out-group salience of other players of Muslim and Christian backgrounds. Having one more SM in the room significantly decreases FFF donations to SM recipients.[22] This is revealed by the sum of the coefficients *c* and *e* that appear in rows (2) and (4) in TABLE XIV (see the p-value of the first Wald test reported at the bottom of TABLE XIV). Coefficient *f* in row (5) in TABLE XIV indicates that the impact of having one more SX in the room on FFF donations to SX recipients is positive but not always significant. The p-value of the last Wald test reported at the bottom of TABLE XIV indicates that the difference between these two impacts is strongly significant in all specifications, confirming our main result that FFF generosity toward SM recipients is decreased by SM out-group salience in a way that is not matched by the impact of SX out-group salience on FFF generosity toward SX.

VI.2. *The Hortefeux Effect As Expected by FFF*

Is the Hortefeux effect still expected by FFF when we control for the average socioeconomic characteristics of SM and SX players and for the out-group salience of other players of Muslim and Christian backgrounds? Results from our robustness checks are reported in TABLE XV. We again find support for FFF believing that the impact of SM out-group salience on other FFF generosity toward SM recipients is more negative than the impact of SX out-group salience on other FFF generosity toward SX recipients in all specifications. The difference between these two impacts is significant in most specifications.

VI.3. *The Unchanged Total Donation Received from non-FFF Donors When SM Numbers Increase*

Is the total donation received by each of the four ethno-religious types of recipients from non-FFF donors still unaffected by SM out-group salience when we control for the average socioeconomic characteristics of SM and SX players and for the out-group salience of other players of Muslim and Christian backgrounds? Results from our robustness checks are reported in TABLE XVI. The p-values of the Wald tests reported at the bottom of TABLE XVI confirm that the total donation received by each of the four ethno-religious types of recipients from non-FFF donors is never impacted by the number of SM in the game session.

VII. Conclusion

This paper estimates the impact of religious difference on discriminatory behavior thanks to experimental games bringing together French who are at least third-generation French (the FFF)

22. The specification in column 6 that controls for the average answer of SM and SX to the "know past players" question is an exception: the decrease is not significant there.

TABLE XV. – FFF Guesses About Other FFF Generosity Toward SM and SX Recipients When SM and SX Numbers Increase. Robustness Checks

	Dep. var.: FFF guesses about FFF donations to SM and SX						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1) FFF → SM	3.447*	3.447*	3.447*	3.447*	3.447*	3.447*	1.864
	(1.691)	(1.691)	(1.691)	(1.691)	(1.691)	(1.691)	(1.952)
(2) (FFF → SM)*Number of SM	−0.545	−0.545	−0.545	−0.545	−0.545	−0.545	−0.346
	(0.362)	(0.362)	(0.362)	(0.362)	(0.362)	(0.362)	(0.323)
(3) (FFF → SM)*Number of SX	−1.485	−1.485	−1.485	−1.485	−1.485	−1.485	−1.074
	(1.079)	(1.079)	(1.079)	(1.079)	(1.079)	(1.079)	(1.124)
(4) Number of SM	0.216	0.410*	0.392	0.299	0.230	−1.620	0.077
	(0.307)	(0.229)	(0.341)	(0.534)	(0.243)	(0.946)	(0.691)
(5) Number of SX	3.047***	2.288***	2.082	2.525***	0.867	2.931***	2.364*
	(0.778)	(0.746)	(1.295)	(0.782)	(0.752)	(0.843)	(1.263)
(6) Female	3.134***	0.985	0.623	0.503	1.740***	1.290*	0.867
	(0.351)	(0.595)	(0.878)	(0.546)	(0.426)	(0.668)	(0.999)
(7) Age	−0.015	−0.005	−0.013	−0.018	−0.021*	−0.018	−0.008
	(0.012)	(0.012)	(0.015)	(0.014)	(0.011)	(0.013)	(0.011)
(8) Education	0.145	−0.092	−0.136	−0.114	−0.201	0.001	−0.007
	(0.211)	(0.156)	(0.242)	(0.233)	(0.157)	(0.191)	(0.237)
(9) Household income	−0.073	−0.013	−0.008	0.064	−0.056	0.027	0.013
	(0.079)	(0.084)	(0.105)	(0.097)	(0.074)	(0.066)	(0.098)
(10) Religiosity	0.593**	0.235	0.150	0.217	0.185	0.438	0.312
	(0.246)	(0.212)	(0.284)	(0.344)	(0.157)	(0.270)	(0.272)
(11) Knows players from previous sessions	−2.904***	−0.909	0.168	−1.031	−0.148	−1.831**	−1.239
	(0.903)	(0.773)	(1.582)	(0.648)	(0.656)	(0.850)	(1.974)
Face fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Average gender of SM and SX	Yes	No	No	No	No	No	No
Average age of SM and SX	No	Yes	No	No	No	No	No
Average education of SM and SX	No	No	Yes	No	No	No	No
Average household income of SM and SX	No	No	No	Yes	No	No	No
Average religiosity of SM and SX	No	No	No	No	Yes	No	No
Average answer to the "know past players" question of SM and SX	No	No	No	No	No	Yes	No
Out-group salience of other Muslim and Christian players	No	No	No	No	No	No	Yes
P-value of the Wald test: (2)+(4)=0	0.31	0.68	0.67	0.64	0.20	0.03	0.68
P-value of the Wald test: (5)=0	0.00	0.01	0.12	0.00	0.26	0.00	0.08
P-value of the Wald test: (2)+(4)=(5)	0.00	0.01	0.12	0.01	0.15	0.00	0.01
R^2	0.696	0.586	0.620	0.614	0.748	0.634	0.570
Observations	42	42	42	42	42	42	42

Notes: The table reports OLS estimates. The unit of observation is a triad formed by a FFF guesser, a FFF donor and a SM or SX recipient. Standard errors are clustered at the guesser level. *, ** and *** indicate significance at the 10, 5 and 1% levels.

TABLE XVI. – Total Donation Received by All Ethno-Religious Types of Recipients from non-FFF Donors When SM and SX Numbers Increase. Robustness Checks

	Dep. var.: Total donation received by all recipients from non-FFF donors						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1) non-FFF → SM	−5.865	−5.865	−5.865	−5.865	−5.865	−5.865	−19.920
	(5.936)	(5.936)	(5.936)	(5.936)	(5.936)	(5.936)	(10.605)
(2) (non-FFF → SM)*Number of SM	0.788	0.788	0.788	0.788	0.788	0.788	2.076
	(2.605)	(2.605)	(2.605)	(2.605)	(2.605)	(2.605)	(2.417)
(3) (non-FFF → SM)*Number of SX	2.846	2.846	2.846	2.846	2.846	2.846	6.430*
	(3.157)	(3.157)	(3.157)	(3.157)	(3.157)	(3.157)	(2.944)
(4) non-FFF → FFF	−3.808	−3.808	−3.808	−3.808	−3.808	−3.808	−12.557**
	(3.069)	(3.069)	(3.069)	(3.069)	(3.069)	(3.069)	(4.091)
(5) (non-FFF → FFF)*Number of SM	0.936	0.936	0.936	0.936	0.936	0.936	1.738
	(1.661)	(1.661)	(1.661)	(1.661)	(1.661)	(1.661)	(1.057)
(6) (non-FFF → FFF)*Number of SX	0.923	0.923	0.923	0.923	0.923	0.923	3.154*
	(2.103)	(2.103)	(2.103)	(2.103)	(2.103)	(2.103)	(1.488)
(7) non-FFF → NA	0.519	0.519	0.519	0.519	0.519	0.519	1.896
	(2.799)	(2.799)	(2.799)	(2.799)	(2.799)	(2.799)	(3.630)
(8) (non-FFF → NA)*Number of SM	−0.673	−0.673	−0.673	−0.673	−0.673	−0.673	−0.799
	(0.899)	(0.899)	(0.899)	(0.899)	(0.899)	(0.899)	(1.014)
(9) (non-FFF → NA)*Number of SX	−0.308	−0.308	−0.308	−0.308	−0.308	−0.308	−0.659
	(0.832)	(0.832)	(0.832)	(0.832)	(0.832)	(0.832)	(0.910)
(10) Number of SM	−1.132	−0.293	−1.498	−1.571	−0.429	−0.900	−0.855
	(2.170)	(1.618)	(1.500)	(2.286)	(1.778)	(5.135)	(2.454)
(11) Number of SX	−0.790	0.256	−1.642	0.269	2.516	−0.061	−0.554
	(2.198)	(2.113)	(2.017)	(2.441)	(2.275)	(2.600)	(2.504)
Face fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Average gender of SM and SX	Yes	No	No	No	No	No	No
Average age of SM and SX	No	Yes	No	No	No	No	No
Average education of SM and SX	No	No	Yes	No	No	No	No
Average household income of SM and SX	No	No	No	Yes	No	No	No
Average religiosity of SM and SX	No	No	No	No	Yes	No	No
Average answer to the "know past players" question of SM and SX	No	No	No	No	No	Yes	No
Out-group salience of other Muslim and Christian players	No	No	No	No	No	No	Yes
P-value of the Wald test: (2)+(10)=0	0.85	0.83	0.57	0.62	0.81	0.98	0.44
P-value of the Wald test: (5)+(10)=0	0.91	0.73	0.22	0.72	0.65	0.99	0.59
P-value of the Wald test: (8)+(10)=0	0.56	0.70	0.31	0.40	0.66	0.78	0.61
P-value of the Wald test: (10)=0	0.62	0.86	0.35	0.51	0.82	0.87	0.74
R^2	0.159	0.106	0.560	0.284	0.317	0.078	0.190
Observations	48	48	48	48	48	48	48

Notes: The table reports OLS estimates. The unit of observation is a dyad formed by a non-FFF donor and a recipient. Standard errors are clustered at the session level. *, ** and *** indicate significance at the 10, 5 and 1% levels.

and a set of immigrants who differ solely on religion. We report that a socialization phase in the experimental protocol has a discernible effect in reducing anti-Muslim behavior, giving limited support for contact theory. However, we further find that FFF discriminate against Muslims when the proportion of Muslims (what we call "Muslim out-group salience") increases. No such result is obtained with the impact of Christian out-group salience on FFF behavior toward matched Christians. We portray this result on Muslim out-group salience as the Hortefeux effect – referring to the French Minister of Interior who articulated the challenge of increased Muslim presence in France in an impromptu setting – revealing the conditions under which group threat theory erases the gains coming from individual contact. Moreover, we find that the Hortefeux effect is expected by our FFF players, and may therefore constitute a behavioral norm. Finally, based on a rational model and an empirical test of the mechanisms this model uncovers, we provide tentative evidence that the Hortefeux effect derives from an activation of taste-based discrimination by FFF against Muslims when Muslim numbers increase.

Our determination in addressing issues of internal validity so that we could isolate the micro-foundations of religious discrimination in France limits our ability to formulate any direct policy implication. For example, in our games, the fraction of SM increases by nearly threefold from 1/10 of the participants to 3/10. In the real world, as estimated by PEW [2011], the proportion of Muslims in France will increase from 7.5% in 2010 to 10.3% in 2030, indeed a much less dramatic change. Furthermore, it is unlikely that the size of any group of immigrants in France will increase in any neighborhood at the rate that occurred in our experimental games, despite expected increases in the foreign born population. For one, as demonstrated in the computations at the census track (or *ilot*) level of PAN KÉ SHON and VERDUGO [2014], "the overwhelming majority of immigrants [in France] live in census tracts in which the proportion of their national group in the population is less than 5%" and this is true for Arabs and Africans. ALGAN, HÉMET, and LAITIN [2012] similarly find very low concentration at the *ilot* level of particular nationalities in the public housing sector, despite the fact that immigrants overwhelmingly live in this sector as shown by FOUGÈRE *et al.* [2011]. Second, this dispersion is likely to be sustained by the country's housing policy, inspired by Le Corbusier's republican principles, that places immigrants into apartments without consideration of ethnicity. This dispersion by nationality of immigrant groups explains why we were limited in our ability to obtain sufficient numbers of SX and SM at a single site. Indeed, in our national survey of SM and SX respondents, to reach a sample of 511, we interviewed SM and SX from 270 separate cities. Thus we were compelled to sacrifice sample size for our game set-up to sustain our identification strategy. Notably, the Hortefeux effect is estimated on roughly 40 observations. This obviously calls for further studies to test for the external validity of our results.

Nonetheless, our findings provide one perspective on the handicap faced by Muslims today and its likely evolution in the next decades, not only in France but also in other Western countries provided our results hold there as well. First, the simple expectation that the presence of several Muslim employees exacerbates discomfort among the mainstream workforce and customers may motivate any recruiter, even if she has no case against any particular Muslim, to screen out Muslim applicants, effectively discriminating on the basis of perceived religion.[23] Second, all

23. Our findings also offer an explanation for religious discrimination that might exist in other markets that are critical for the successful economic integration of immigrants, such as the housing and marriage markets. In the latter, based

else equal, our results suggest that anti-Muslim prejudice will increase in the future with the predicted growing share of Muslim immigrants in Western countries, potentially becoming a source of deeper social tensions. As host populations begin to perceive a cultural threat due to Muslim populations passing some threshold, they may be reluctant to support the funding of public goods. They may also decide to send their children to more homogeneous schools or even move to more homogeneous neighborhoods. In the first case, the quality of public life would decline; in the second case, segregated communities would likely lead to a permanent underclass of Muslim discontents. Of course, future research must address these external validity issues. It must also be mindful of the many factors that will undoubtedly influence the behavior of FFF vis-à-vis Muslims in the future, namely international politics, terrorism, economic crisis, and the human rights regulations emerging from the EU. All of these elements will evolve over time, and could easily impact the micro trends identified herein. But this paper provides a set of expectations based on well-specified micro-foundations.

Our findings echo the results of previous studies that analyze the link between the salience of a minority and hostility toward that minority. When they are significant, these results point to a positive relationship between both dimensions. They are therefore consistent with the mechanisms that we identify here, viz. the activation of taste-based discrimination of the majority against the minority when the relative size of the minority increases. Once identified, however, solutions are not obvious; Paluck and Green's extensive review of the literature (2009) underlines the ineffectiveness of many prejudice-reducing policies. More optimistically, POPE 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 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. This could be particularly effective among the French, whose republican traditions going back to the early 20th century demanded that all citizens, *qua* citizens, be treated equally.

on the survey *Trajectoires et Origines* administered in France by INSEE and INED in 2008, COLLET and SANTELLI [2012] show that immigrants of North African, Sahelian or Turkish origin are much less likely to marry someone with no recent immigrant background than are immigrants of other origins.

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Appendix

A. SM and SX Generosity Toward Their in-Group When SM and SX Numbers Increase. OLS Analysis

	Dep. var.: SM and SX donations to their in-group			
	(1)	(2)	(3)	(4)
(1) SM → SM	0.711	−0.271	−1.189	−2.065
	(1.367)	(2.642)	(4.129)	(3.011)
(2) (SM → SM)*Number of SM	−0.740	−0.733	−0.846	−0.195
	(0.534)	(0.538)	(1.229)	(0.657)
(3) (SM → SM)*Number of SX	−0.328	0.383	0.892	0.694
	(0.690)	(1.701)	(2.512)	(1.940)
(4) Number of SM	0.290	0.268	0.381	−0.077
	(0.463)	(0.472)	(1.141)	(0.532)
(5) Number of SX	−0.355	−0.707	−1.006	−0.729
	(0.568)	(1.072)	(2.089)	(1.247)
(6) Female			0.131	0.152
			(0.504)	(0.383)
(7) Age			0.000	0.002
			(0.033)	(0.021)
(8) Education			0.030	0.059
			(0.158)	(0.072)
(9) Household income			−0.052	−0.052
			(0.108)	(0.081)
(10) Religiosity			−0.087	−0.085
			(0.250)	(0.146)
(11) Knows players from previous sessions			0.377	0.516
			(0.900)	(0.460)
P-value of the Wald test: (2)+(4)=0	0.10	0.07	0.22	0.38
P-value of the Wald test: (5)=0	0.54	0.52	0.64	0.56
P-value of the Wald test: (2)+(4)=(5)	0.88	0.83	0.80	0.72
Face fixed effects	No	Yes	Yes	Yes
Multiple Imputation Analysis	No	No	No	Yes
R^2	0.512	0.527	0.581	0.600
Observations	27	27	21	27

Notes: The table reports OLS estimates. The unit of observation is a dyad formed by a SM donor and a SM recipient or a SX donor and a SX recipient. The dependent variable is categorical. It ranges from 0 (the donor gives nothing to the recipient) to 5 (the donor gives her total endowment to the recipient). "SM → SM" is a dummy that takes the value 1 if the donor is SM and the recipient is SM, and the value 0 if the donor is SX and the recipient is SX. "Number of SM" is equal to the number of SM in the game session. "Number of SX" is equal to the number of SX in the game session. "Female" is a dummy that takes the value 1 if the donor is female and the value 0 otherwise. "Age" is equal to the age of the donor. "Education" is a categorical variable that ranges from 1 (less than primary school completed) to 10 (higher than college degree completed). "Household income" is a categorical variable that ranges from 1 (less than 500 euros monthly) to 11 (more than 7,500 euros monthly). "Religiosity" is a categorical variable that ranges from 1 (never attends religious services) to 7 (attends religious services several times a week). "Knows players from previous sessions" is a dummy that takes the value 1 if the donor knows players who participated in previous game sessions and the value 0 otherwise. The sum of the coefficients in rows (2) and (4) stands for the impact on the amount given by SM donors to SM recipients when there are no SM and no SX donors in the session, of having one additional SM in the game session. The coefficient in row (5) stands for the impact on the amount given by SX donors to SX recipients when there are no SM and no SX donors in the session, of having one additional SX in the game session. Standard errors are clustered at the donor level. *, ** and *** indicate significance at the 10, 5 and 1% levels.

B. SM and SX Generosity Toward FFF Recipients When SM and SX Numbers Increase. OLS Analysis

	Dep. var.: SM and SX donations to FFF			
	(1)	(2)	(3)	(4)
(1) SM → FFF	−1.422	−1.360	−3.696***	−2.749**
	(1.197)	(1.108)	(1.232)	(1.279)
(2) (SM → FFF)*Number of SM	−0.475	−0.506	0.388	−0.152
	(0.388)	(0.367)	(0.587)	(0.503)
(3) (SM → FFF)*Number of SX	1.025	1.030*	1.384	1.301**
	(0.612)	(0.563)	(0.931)	(0.602)
(4) Number of SM	0.457**	0.475***	0.208	0.245
	(0.192)	(0.170)	(0.491)	(0.267)
(5) Number of SX	−0.855*	−0.562	−0.776	−0.678
	(0.486)	(0.474)	(1.034)	(0.483)
(6) Female			0.423*	0.443*
			(0.223)	(0.235)
(7) Age			−0.032*	−0.006
			(0.017)	(0.016)
(8) Education			0.059	0.008
			(0.075)	(0.061)
(9) Household income			−0.087	−0.040
			(0.067)	(0.052)
(10) Religiosity			0.008	−0.107
			(0.121)	(0.100)
(11) Knows players from previous sessions			0.395	0.478
			(0.450)	(0.371)
P-value of the Wald test: (2)+(4)=0	0.96	0.92	0.09	0.77
P-value of the Wald test: (5)=0	0.09	0.25	0.46	0.17
P-value of the Wald test: (2)+(4)=(5)	0.17	0.37	0.23	0.17
Face fixed effects	No	Yes	Yes	Yes
Multiple Imputation Analysis	No	No	No	Yes
R^2	0.218	0.294	0.411	0.384
Observations	81	81	63	81

Notes: The table reports OLS estimates. The unit of observation is a dyad formed by a SM donor and a FFF recipient or a SX donor and a FFF recipient. The dependent variable is categorical. It ranges from 0 (the donor gives nothing to the recipient) to 5 (the donor gives her total endowment to the recipient). "SM → FFF" is a dummy that takes the value 1 if the donor is SM and the recipient is FFF, and the value 0 if the donor is SX and the recipient is FFF. "Number of SM" is equal to the number of SM in the game session. "Number of SX" is equal to the number of SX in the game session. "Female" is a dummy that takes the value 1 if the donor is female and the value 0 otherwise. "Age" is equal to the age of the donor. "Education" is a categorical variable that ranges from 1 (less than primary school completed) to 10 (higher than college degree completed). "Household income" is a categorical variable that ranges from 1 (less than 500 euros monthly) to 11 (more than 7,500 euros monthly). "Religiosity" is a categorical variable that ranges from 1 (never attends religious services) to 7 (attends religious services several times a week). "Knows players from previous sessions" is a dummy that takes the value 1 if the donor knows players who participated in previous game sessions and the value 0 otherwise. The sum of the coefficients in rows (2) and (4) stands for the impact on the amount given by SM donors to FFF recipients when there are no SM and no SX donors in the session, of having one additional SM in the game session. The coefficient in row (5) stands for the impact on the amount given by SX donors to FFF recipients when there are no SM and no SX donors in the session, of having one additional SX in the game session. Standard errors are clustered at the donor level. *, ** and *** indicate significance at the 10, 5 and 1% levels.

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