

## Integration into Europe: Identifying a Muslim Effect

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### I. Introduction

This paper introduces a solution to a previously intractable measurement problem on a politically sensitive social issue – that of the integration of Muslims into Europe. The resulting measure, if valid, would tell us if Muslim immigrants and their descendents in country  $x$  face higher barriers to social and economic integration than if everything about these migrants were the same except for their religion.<sup>1</sup>

The importance of answering this question cannot be understated. The social and political relations between Europe and the Muslim world are fractious.<sup>2</sup> Attacks in Madrid (March 2004) and London (July 2005), and riots in suburban Paris in November 2005 and November 2007, have all been attributed to “Muslims”.<sup>3</sup> Political parties in Europe (for example the *Front National* in France, which placed second in the presidential elections of 2002), have mobilized opinion against a Muslim threat to Europe. Relations between the countries and societies of the European Union and the Muslim World have therefore become politically consequential on a number of dimensions – foreign policy in regard to the Middle East; new membership into the EU; and the vast migration of Muslim populations into EU states.

Several recent studies reveal ambiguous findings for Muslims in Europe. On the one hand, the Pew poll of 2006 found that “while there are some signs of tension between Europe's majority populations and its Muslim minorities, Muslims there do not generally believe that most Europeans are hostile toward people of their faith.”<sup>4</sup> Moreover, 91% of French Muslims express favorable opinions of Christians. Furthermore, the Pew report claims, “Substantial majorities of Muslims living in the European countries surveyed say that in [the two years after bombings in

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<sup>1</sup> . This research was funded by the National Science Foundation, Muslim Integration into EU Societies: Comparative Perspectives”, Grant SES-0819635, David Laitin, PI.

<sup>2</sup> . See Caldwell (2009) for an exposition of tensions between Muslim populations now living in Western Europe that puts much of the blame on the attitudes and behaviors of the Muslims themselves. See Sniderman and Hagendoorn (2007) for a sophisticated survey approach that finds deep prejudices against Muslims.

<sup>3</sup> . Although objective analysts such as the International Crisis Group reported no direct connection between the French riots and Islam (see Xavier Ternisien “La France et son islam, vus d’ailleurs” *Le Monde*, March 11, 2006), it is not lost on the general French population that “most of the rioters were of Muslim origin” (Xavier Ternisien “Les ‘barbus’ dans le 9-3” *Le Monde*, November 17, 2006), and leads to the question of whether higher barriers to economic and social advance to Muslims might have been an indirect determinant.

<sup>4</sup> . The Pew Research Center for the People & the Press is a public opinion research organization that studies attitudes toward politics, the press and public policy issues.

Spain and London, and the Cartoon Crisis in Denmark<sup>5</sup>] they have not had any personally bad experience attributable to their race, ethnicity or religion.”<sup>6</sup>

Yet Europe – with states defined by their historic nationalities, all of them in the Christian tradition – is seen by many observers as having a special problem with Islam going back to the fall of Constantinople to the Ottomans and the Reconquest of Spain in the 15<sup>th</sup> century. Thus there is throughout the continent a myth of a “Christian Europe” that is maintained despite its virtually complete secularization in the past century. It manifests itself clearly in the application of Turkey into the EU (as opposed to Bulgaria), where suspicions run high.<sup>7</sup> Even the Pew survey, which in general presented very positive feelings by Muslim migrants into Europe, notes that “over a third of Muslims in France ... say they have had a bad experience as a result of their religion or ethnicity,” and 39 percent of the Muslim respondents in France agree that “most or many Europeans are hostile to Muslims.”<sup>8</sup>

French policies to incorporate Muslims into a docile and accommodative pressure group have often backfired. Under Minister of Interior Nicolas Sarkozy, the Conseil Français du Culte Musulman (CFCM) was created in 2005 as a representative body for Muslims living in France. Yet it quickly turned into an arena of contentious politics: “Although this council was supposed to provide an alternative to foreign interference in French Islam,” John Bowen (2009, 26) notes, “it in fact has had the opposite effect. The Algerian, Moroccan, and Turkish consulates saw the 2003, 2005, and 2008 council elections as opportunities to ratchet up control over their constituents by promoting slates associated with each of the home countries, and they did indeed mobilize these residents of France to vote for their slate.” Moreover, in France, 76 percent of the non-Muslim respondents expressed concern over Muslim extremism in their country. Even in the highly tolerant Netherlands, the Muslim issue has wreaked political havoc, with a near populist revolt against Islamic immigration. On November 2, 2004, the filmmaker Theo Van Gogh was

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<sup>5</sup> . Cartoons in a Danish newspaper that depicted the prophet in an unflattering manner set off a wave of protests throughout the Islamic world as well as crystallized anti-Muslim feelings, to the benefit of a new right party (the Danish People's Party) that evokes anti-Muslim sentiments. See Dan Bilefsky “Cartoon Dispute Prompts Identity Crisis for Liberal Denmark” *International Herald Tribune* (February 12, 2006).

<sup>6</sup> . For full results, see Pew Global Attitudes Project, <http://pewglobal.org/reports/display.php?PageID=831>. Work by Lawrence and Vaise (2006, pp. 43-44, 58-9, 66) in France reports similar results. Muslim immigrants, they find, are not all that different from the historic nationalities of European states. In general, they find, the degree of anti-Islamism in police recorded incidents in France is much lower than anti-Semitic ones with a much larger relative Muslim population in France. Those who are Islamophobic tend also to be anti-Semitic and anti-immigrant in general. They conclude, at least for France, that there seems to be no specific anti-Islamic public feeling. See also Simon Kuper “Immigrant Muslims in Belleville”, *Financial Times*, October 2 2009, [http://www.ft.com/cms/s/2/1f4cf7c4-ad5e-11de-9caf-00144feabdc0,dwp\\_uuid=a712eb94-dc2b-11da-890d-0000779e2340.html](http://www.ft.com/cms/s/2/1f4cf7c4-ad5e-11de-9caf-00144feabdc0,dwp_uuid=a712eb94-dc2b-11da-890d-0000779e2340.html).

<sup>7</sup> . *New York Times*, September 26, 2007, reports that the EU has officially pictured Europe on its Euro currency that includes (Christian) Belarus, Moldova, and parts of Russia, but not Turkey, which officials admit was stricken from the map. Current French President Nicolas Sarkozy expressly opposes Turkey’s accession into the EU. See Tony Barber. 2009. "Fears grow of Sarkozy initiative to downgrade Turkey's EU bid." *The Financial Times* (October 15). Available: <http://blogs.ft.com/brusselsblog/2009/10/fears-grow-of-sarkozy-initiative-to-downgrade-turkeys-eu-bid/>

<sup>8</sup> . <http://pewglobal.org/reports/display.php?ReportID=254>.

murdered by a homegrown Muslim fundamentalist for having created with writer Ayaan Hirsi Ali a 10-minute movie called “Submission” on the treatment of women in Islam. In the ensuing month, a report from the Anne Franck Foundation and the University of Leiden counted a total of 106 cases of anti-Muslim violence, 47 of them directed against mosques.<sup>9</sup>

There is then a popular impression of an impenetrable wall between Christian Europe and the Muslim world. This ideology has helped breed resentment among Muslim populations in the EU, with important implications for their future loyalty to the states that are hosting them. For example, a survey in London has shown that across generations with other immigrant groups, descendents of immigrants become more secular; among Muslims, however, the direction is the reverse.<sup>10</sup> A respected columnist for the New York Times, in the wake of riots in central Paris in response to the publication of Salman Rushdie’s *Satanic Verses* in France, writes: “Even at the best of times, the relations between native Western Europeans and the roughly six million Muslims who live in their midst are difficult. At the bottom of the economic order, Muslim immigrants frequently suffer from prejudice and discrimination, and many cling to their faith as a talisman of a separate identity.”<sup>11</sup>

The examples above show the importance of providing a data-based analysis to uncover the degree to which this popular impression that Muslim immigrants face greater hurdles in their social and economic integration into Europe is correct; and if it is, to understand the source of the impenetrability.

Data on Muslims in Europe in general but France more particularly are hard to get. In France, a 1978 law set prohibitions on the collection of data on the racial, religious, or ethnic identity of its citizens, creating challenges for demographic research. For instance, in a leading sociological study of the economic success of different immigrant groups, researchers could not distinguish the children of Algerian migrants into France from the children of the *pieds noirs*, those of European ancestry who left after Algerian independence of 1962 (Meurs et al., 2006, pp. 675-76). Although the law was partially relaxed in 2007, this type of data collection has remained stringently limited.<sup>12</sup>

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<sup>9</sup> For documentation, see Donselaar and Rodrigues (2004).

<sup>10</sup> . Jon Snow “Muslim integration has come to a halt.” Sunday Times (London), August 6, 2006 reports on a survey conducted by NOP for Channel 4’s Dispatches, though no references are provided. This journalistic report is consistent with data analyzed in Bisin et al (2007), but counter to a different survey conducted by Manning and Roy (2007). Needless to say, the accumulated data do not tell a consistent story.

<sup>11</sup> . James Markan, March 5, 1989, in “Books” section of the New York Times. The image of a Muslim threat to Europe and its values (as well as its generous social welfare packages) pervades press reports. For example, see Christopher Caldwell’s report on Sweden, “Islam on the Outskirts of the Welfare State” New York Times Magazine (February 5, 2006). A more extensive report, based on five weeks of interviews in France, Germany, Britain and the Netherlands and focusing on a special Muslim problem for Europe, is by Youssef M. Ibrahim “Europe’s Muslim Population: Frustrated, Poor and Divided” The New York Times (May 5, 1995)

<sup>12</sup> . Under Article 8 of the French Data Protection & Liberties Act (Loi informatique et libertés) of 1978, the Commission nationale de l’informatique et des libertés (CNIL) was created as an independent administrative state authority to ensure that outside of the national statistics agency (INSEE), “personal data revealing directly or indirectly the racial or ethnic origin of individuals” could not be processed [by government personnel, or on government contract] without consent. For more information on data constraints in France, see the CNIL web page

Equally important for the problem of statistical analysis, available mass surveys exempt from state oversight rarely (with Pew the exception) include enough Muslims to allow for good data analysis. For example, the World Values Survey included in its first three waves in France only 0.4 per cent Muslims, quite unrepresentative as Muslims make up an estimated 6.3 per cent of the resident population.<sup>13</sup>

But the real killer for causal identification is the problem of multicollinearity between the geographic origin of the migrant and her religion (Greene 2008, 59-61). In Germany, nearly all Muslims are from Anatolia, making it statistically difficult to isolate a Muslim effect from a Turkish one. In the UK, the same is the case with South Asians. And in France, nearly all Muslims are from the Maghreb. The purpose of this paper is to demonstrate the inferential difficulty in identifying a religious effect on immigrant integration and to offer an alternative, one that can isolate a religious effect more successfully than can randomized high-n procedures.

## II. Identification through Matched Comparisons

The identification strategy for this project is a set of matched comparisons that address the problem of multicollinearity.<sup>14</sup> This approach requires the choice of immigrant groups that are divided religiously, with one portion of them being Muslim. Comparing the Muslims and non-Muslims in each group allows one to measure the “Muslim effect” without other confounding factors.

Proper matching requires that the two religious subsets of religiously divided immigrant groups arrive at the host country with relatively equal resources, or else the comparison would be biased. Suppose the target population were Lebanese in Western Europe or North America, and the comparison were between Maronite Christians and Sunni Muslims. Because the Maronites

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[http://www.cnil.fr/english/news-and-events/measuring-diversity/?tx\\_indexedsearch\[ext\]=1&tx\\_indexedsearch\[sword\]=Constituional+Council&x=24&y=10](http://www.cnil.fr/english/news-and-events/measuring-diversity/?tx_indexedsearch[ext]=1&tx_indexedsearch[sword]=Constituional+Council&x=24&y=10). In 2009, the minister of diversity, with the full support of the president, has taken a new tack on the collection of data on the ethnic and religious self-designation of French citizens, which may prove to be a major breakthrough in future sociological analysis of the population. See *Le Monde* 18 avril 2009, “Horizons/Débats”, pp. 18-19, “Statistiques ethniques: pour ou contre?” In these debates, Eric Fassin, sociologist at the National School of Administration (ENA) explains that the real question is to know what use will be made of these measures. Stéphane Jugnot, a statistician and economist, offers a polemic against Patrick Simon, the leading advocate for the collection of state data on ethnicity, working in the INED [Institut national d’études démographiques], calling his proposals hypocritical, in that the categories of diversity will be racial and will lead to pressures for affirmative action that will reify racial consciousness in the population. Yazid Sabeg (the new minister of diversity) has promoted self-attribution. Jugnot claims that this is also hypocritical “because self-attribution only exists if the question of the origins of identity is an open-ended question.” But then, Jugnot predicts, the answers will be so diverse (someone could answer that he is “somewhat Egyptian, somewhat Arab, somewhat Copt, somewhat French”) that researchers, to make any sense of the data, will have to impose a categorization that will reify race and religion in defiance of republican ideals.

<sup>13</sup> . The World Values Survey is a global network of social scientists who have surveyed the basic values and beliefs of the publics of more than 80 societies, on all six inhabited continents. Their most recent wave includes 9.4% Muslims in France, but with a sample size of 500, it remains difficult to isolate a Muslim effect with standard controls. See their website at: <http://www.worldvaluessurvey.org/>.

<sup>14</sup> . Blank et al (2004, 146-7) and Sekhon (2009) describe and defend matching procedures.

start off earlier and with rich international networks of banking families, a finding that Maronites achieve higher rates of economic and social success would tell us little about comparative social and economic barriers in the West due to religion.

Careful examination of small immigrant groups invites opportunities to get a reasonable approximation to an unbiased comparison. In our case, we identified an estimated 10,000 immigrants in France with family backgrounds as Joolas and Serers, two distinct ethno-linguistic communities from Senegal (hereafter, the Serer and Joola Muslims from Senegal will be called SM's; the Serer and Joola Christians from Senegal SX's).<sup>15</sup> These two groups, unlike all other communities in Senegal, have a sufficiently large Christian population to allow for intra-group comparisons.<sup>16</sup> Moreover, contrary to what we observe for Lebanese Maronite Christians and Sunni Muslims, SX's did not benefit from the earlier settlement of a Senegalese Christian diaspora in France. This result comes from a survey conducted in 2009 among 511 respondents from Senegalese background, with 509 giving a clear indication whether their household is Muslim or Christian (29% Christian; 71% Muslim).<sup>17</sup> Data from this survey indicate that the time elapsed since the settlement of the first migrant is 39 years for Senegalese Christian families and 39.3 years for Senegalese Muslim families. This difference is not statistically significant. The only critical difference upon the arrival to France of SM's and SX's relates to education: SX's were slightly more educated than Muslims (significant at 90%). While the probability of having a secondary or a post-secondary education is 36% among SX's, it is 27% among SM's (this difference is significant at the 95% level).<sup>18</sup> A proper matching strategy between SX's and SM's will thus require a control for the first migrant's level of education.

The common thread through all the research efforts for this project is therefore to see if, across generations, and controlling notably for the education level of the first migrant, SX's have been more successful in breaking through social and economic glass ceilings in France than have SM's, and to explain why it is so. With this procedure, we are confident that any differences found between the two groups are the result of some aspect of their religious upbringing or practice, since geographic origin does not vary and initial human capital is controlled for.<sup>19</sup>

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<sup>15</sup> . We include Manjaks, a closely related linguistic group, with the Joolas. See Summer Institute of Languages Ethnologue, [http://www.ethnologue.com/show\\_country.asp?name=SN](http://www.ethnologue.com/show_country.asp?name=SN).

<sup>16</sup> . From the 2002 Senegalese census, 25% of the Joolas and 11% of the Serers are Christian, while for Senegal as a whole, about 5% are Christian. For the latter figure, see [http://www.adherents.com/adhloc/Wh\\_295.html#677](http://www.adherents.com/adhloc/Wh_295.html#677).

<sup>17</sup> . This survey was conducted under contract by CSA France, in a project in which David Laitin, Yann Algan, and Vincent Tiberj are principal investigators. Descriptive statistics of the survey are in Table 1 of the Appendix. Hereafter this survey will be referred to as the Laitin/CSA survey.

<sup>18</sup> . Data from the 2002 Senegalese census, which we will report on in a future paper, reveal precisely the same degree of educational difference between the subset of Muslim and Christian Joolas and Serers who have a relative living in Europe. 57% of Muslim respondents who had a relative in Europe had only a primary or middle school education, while 42% had higher levels of education. For Christians, the figures are 53% primary or middle, and 47% more advanced. These results are significant at the 99% level, but substantively are not radically different. These data add confidence that the Laitin/CSA survey was representative of the two ethno-linguistic migrant groups in France. Thanks to Chris Beauchemin for giving us access to the census data, to Susan Holmes for technical assistance, and to Jessica Gottlieb for research assistance.

<sup>19</sup> . There is a myth in France, held particularly strongly by Arabs, that African Muslims are not really Muslims, since they don't speak Arabic and mix freely with non-Muslim Africans (Diop 1988). If true, this myth could

### III. Application of the Identification Strategy in a Survey

In this section, we illustrate the multicollinearity problems that plague large-n survey analyses of immigrants to France. First, we draw from a large-n survey of 12,010 randomly selected households with an immigrant then (2002-2003) living in France, one of the few large-n surveys in France where a self-reported question on religion was posed.<sup>20</sup> The survey also contains key information on the age, sex, education, region of origin and income of immigrant respondents. These data are appropriate for analysis of retirement decisions; but also allow us to illustrate the problematic effects of multicollinearity between a migrant's region of origin and her religion.

In Table 1, Models (1) through (3) illustrate the multicollinearity problem. Model (1) estimates the respondent's income as a function of her sex, age, education and region of origin. Here we focus on the immigrant's region of origin. Controlling for age and education, a nonwestern origin exercises a significant and negative effect on her income level. Immigrants from each of the four developing regions, Latin America and the Caribbean, Asia, North Africa and the Middle East, and sub-Saharan Africa, are significantly poorer than immigrants from Western countries. In Model (2), we replace the respondent's region of origin with her religion. Here we find that Muslims are significantly poorer than Christians. In Model (3), we include both region of origin and religion as predictors of an immigrant's income. *The Muslim effect previously identified in Model (2) and the Middle East/North Africa effect previously identified in Model (1) lose statistical significance.* Once we control for both region of origin and religion, we are unable to identify either a Muslim or a Middle East/North Africa effect in a country where most Middle East/North African immigrants are also Muslim. If the goal is to identify an independent Muslim effect on an immigrant's income, Table 1 yields inconclusive results.

Table 1, Model (3), is nonetheless informative in that it displays a persistent significant negative effect of Latin America, Sub-Saharan Africa and Asia on immigrant income. It is therefore possible to obtain greater leverage on the Muslim effect by focusing on those regions of origin that comprise a more equitable balance of Muslims and non-Muslims – at least in their

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weaken any Muslim effect, but the bias would be against finding such an effect. Ours is thus a more demanding test for identifying a Muslim effect.

<sup>20</sup> . Wolff, François-Charles, Seymour Spilerman, and Claudine Attias-Donfut (2007) "Transfers from migrants to their children: Evidence that altruism and cultural factors matter" [Review of Income and Wealth](#). The PRI project was carried out under the direction of Claudine Attias-Donfut, in collaboration with Rémi Gallou and Alain Rozenkier, with funding from the ACSE, the Agricarcco, the MSA and the Caisse des Mines. This PRI project, completed in 2003 by the Caisse Nationale d'Assurance Vieillesse and the Institut National de la Statistique et des Etudes Economiques (Insee), examines the factors and mechanisms that characterize immigrants' transition into retirement. Respondents were randomly selected from the Insee Census of 1999, from the baseline population of households with at least one immigrant member between the ages of 45 and 70 at the time of the survey administration. The resulting sample comprises 6,211 respondents, 46.4% women, of mean 55.8 years and median 55 years of age. It is representative of the immigrant population residing in metropolitan France in 2003, that is to say, of all foreign-born immigrants in the selected age range. While the data remain private, the authors kindly provided the data permitting our analysis in Table 1.

immigrant population to France. Our identification strategy takes advantage of regional controls to obtain a sharper identification of a possible Muslim effect on income in France.

Based on the Laitin/CSA survey, in which we can analyze a sub-sample of Christian and Muslim immigrants from the same region of origin, our identification strategy permits a sharper identification. We run an ordered probit regression with robust standard errors, with the current monthly household income as the dependent variable. The explanatory variables are the religious tradition of the household, the head of household's gender and education level, and the education level of the head of household's ancestor who was the first to come to France. The results are reported in Table 2. We find that households with a Christian religious tradition are significantly richer than households with a Muslim religious tradition (significant at the 99% level). More precisely, the probability of having a household income greater than the median in our regression sample (N=312) decreases by more than 25% when the household is Muslim. (This probability is equal to 52.0% when the household is Christian and to 37.9% when the household is Muslim). In sum, even controlling for the education level of the first migrant to France, there is a significant negative Muslim effect on present day household income.

#### **IV. Exploring Mechanisms through a Field Experiment: the set-up**

The next question is whether our matching strategy allows for leverage on why Christian immigrants have advanced economically faster than have Muslim immigrants. To address this question, we conducted a series of field experiments, using the matching comparison approach.<sup>21</sup> We supervised eight sessions of games held in a rented private language school in the diverse setting of Paris' 19<sup>th</sup> district. Each session comprised a minimum of ten players, and a theoretical maximum of 15, though in practice the largest session had 14 players. Three of the sessions had all women players; three had all men; and two were mixed gender. In these sessions, we conducted a set of experiments in the game theory tradition (Camerer 2003). We elaborate on key aspects of our protocols below.

The setting. Our identification strategy required us to embed SM's and SX's (whom we refer to as our target population) in a context that would seem natural to them, devoid of any signal that we were seeking to isolate the effect of religion on behavior. We chose then to conduct the experiments in a private language school in the heart of an ethnically diverse district of Paris, the 19<sup>th</sup>. In the 19<sup>th</sup> district (compared to the figure for all Paris), the average size of a household is 2.15 (1.87); the percentage of adults who are workers is 20.9 (14.5), the percentage living in social housing is 40.8 (19.7), and the percentage born in France is 63.5 (82.4).<sup>22</sup> In this significantly immigrant district, for players to see a few Africans planted into their subject groups was hardly eyebrow raising. Indeed, our solution to the hiding of our identification strategy worked. In exit surveys, not a single subject speculated that religion had anything to do

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<sup>21</sup> . Full protocols (in French, but with English translations) are available on the project website, xxx. Here we review only what is necessary for interpreting the results presented in the subsequent section. For purposes of ethical oversight, all experimental protocols were reviewed and approved at the Stanford University IRB.

<sup>22</sup> . Data supplied by the mayor's office at the 19<sup>th</sup> district. On foreign born in Paris, see <http://www.migrationinformation.org/dataHub/GCMM/Parisdatasheet.pdf>. A good picture of the diversity in the 19<sup>th</sup> district is offered in the French film "Entre les murs" ("The Class" in its English-language version).

with the purposes of the games,<sup>23</sup> and only one of the target players out of a total 29 verbally wondered if there was something odd about having other players in the room who were from the same language group as they were in Senegal. This player never speculated about religion.

Random selection procedures. For the non-targeted players, we used a stratified (by population density) random recruitment procedure centered on the twenty-one metro stations in the district. 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 would draw a station for each recruitment day, and then a number from 1 to 10 to determine which passer-by to invite as game recruit. Those 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, games which were designed to learn how people from Paris and its surroundings made decisions about money. Turn-downs were about 30 percent, introducing some biases that have no easy interpretation.<sup>24</sup> We enrolled sixty-three non-targeted players; 73 percent were born in France (this is higher than the average for the district, but lower than for Paris generally). Table 2 in the Appendix provides further information on the characteristics of the randomly selected players.

The targets. The protocols called for three target players (two from one religion and one from the other) for each session. Of our 29 targets, 18 self-identified as Muslim, 10 as Christian, and one with neither world religion. We relied upon three separate networks to recruit these players. Two of the networks came from the ethnographers who were conducting family histories for our wider research project. Our ethnographers were asked to recruit subjects by merely telling them they had heard about these experiments with a chance to earn a lot of money. No mention was to be made about Senegalese specificity or religion having anything to do with the games. The third network came from a Senegalese night watchman (not of the target populations) who worked at a student dorm. He was given a quota for the targets and paid for each recruit who showed up for inscription and participated in the games. As feasible as possible, each session combined one target from each network, to avoid pairing up players who knew each other. When not feasible, we relied on a local informant who advised us on which of the Senegalese were most likely not to know each other. If we had strong suspicions of players knowing each other, we placed the two of them in the same sub-group, such that they would never play with one another. We asked in the exit survey if any of the players knew another player at their session, and our regressions controlled for dyads in which players reported knowing the other. Table 2 in the Appendix provides further information on the characteristics of the target group.

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<sup>23</sup> . In the exit questionnaire, we asked : “Selon vous, quel était le but de cette étude?” [What was in your opinion the goal of this study?]

<sup>24</sup> . Orthodox Jews turned us down, not only on Saturday recruitment days when they were prohibited from writing, but other days as well. We did not successfully recruit any Asian players, even though by observation (but not in the town data) there were many Asians who were present in the neighborhood. After a few days of recruitment, we realized that our theories (not relevant to this paper) required us to have indigenous French, or “français de souche” (operationally defined as having four grandparents born in France), but that our recruitment methods were failing to get a sufficient number. We therefore broke the sequence rule if we spotted someone whom we thought might be a français de souche.

The trust game. To demonstrate the value of our identification strategy, this paper examines only one of four games we administered: the simultaneous trust game. The purpose of this game was to compare trust and altruism levels of Muslims and Christians. Each iteration of this game comprised a sender, who received three Euros in his/her account and a receiver, who would receive triple the amount from the sender into his/her account. The sender decides to send 0, 1, 2 or 3 of his/her Euros. The receiver (without knowing how much was given), simultaneously decides whether to return nothing, one third of his/her earnings, two-thirds, or all, to the sender. Pairs of players were matched to maximize the interactions with our target players; and for each pair, one was assigned the role of sender and the other of receiver. While playing, they could see the face and the name label of the other player – thereby sending weak but discernible signals of race, ethnicity and religion -- but not his/her allocation sheet.<sup>25</sup> Once allocations were made, the sheets were put in a box by the monitor overseeing each of the tables, and the players returned to the commons room waiting for their next assignment.<sup>26</sup> Over the course of the eight sessions, we collected data on 386 dyads that played the trust game. For this analysis, we will be scrutinizing a sub-set of these interactions: 68 in interactions that did not include the target population; and 32 that only included the target population.

The dependent variable: Our specification of the dependent variable (see Table 3) measures the degree of improvement on self-interested individual behavior that player dyads achieve. Game theory predicts that in a one-shot trust game such as ours, sender would keep all three Euros and receiver would send back nothing. (This is the unique one-shot Nash equilibrium outcome). This result is due to backward induction, where sender understands that receiver has no incentive to return anything; and if that is the case, sender has no motivation to send anything. A (weak, in this case) Pareto improvement (indicated by the blue shading in the boxes of Table 3) are those moves in which one player does at least as well as in Nash, while the other does strictly better. Strong Pareto improvements (indicated by the red shading) are those combinations of moves in which both players get returns strictly better than Nash. Our interpretation of the outcome measured is that a higher level of trust on the part of the sender and a higher level of altruism on the part of the receiver enhance the possibility of a Pareto superior result. The goal of the experiment is to see if religion in a French context can explain variation in the attainment of a weak or a strong Pareto-superior outcome. If so, it should provide a clue as to why there is lower economic achievement of Muslims in France compared to Christians.<sup>27</sup>

## V. Field Experimental Results

We demonstrate the power of our identification strategy by comparing regression results that analyze interactions between Muslim and Christian players in our non-target random sample with the results that we obtain through the isolation of pairings within our target population. Our

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<sup>25</sup> . Players at registration were given labels to put on their chests with their given names inscribed; they were referred to by our monitors (all MA and Ph.D. students at Sciences-Po and at Paris I) by their first names. We take this opportunity to thank Mathieu Couttenier, Jacinto Cuvil Escobar, Karine Marazyan, Nathan Sachs, Etienne Smith, Josselin Thuilliez, and Severine Toussaert for their incredible hard work, intellectual contributions throughout, and dedication to the project.

<sup>26</sup> . We assigned a monitor per playing station to explain the rules of the game to each pair. After providing a brief overview, monitors turned their backs on the players for privacy.

<sup>27</sup> . On the relationship of trust and growth, see Algan and Cahuc (forthcoming).

random sample is similar to the pool of respondents for standard surveys with the notable difference that, due to the focus on the 19<sup>th</sup> district, it is more heavily weighted toward individuals from both North African and Sub-Saharan African background. The heavy sub-Saharan component of our random sample allows us to compare Christians and Muslims from the same region.<sup>28</sup> Yet, the correlation between being European (compared with Non-European) and being Christian (compared with being Muslim) remains very strong in our random sample, at 0.73 (statistically significant at 99.99%). The over-representation of individuals from Sub-Saharan African background may therefore not suffice to solve the multicollinearity problem. More precisely, given the high correlation between religion and region of origin in our random sample, it is likely that (a) the religion variable is a significant factor for reaching a Pareto-superior outcome when there is no control for the geographic origin of the subject; (b) the geographic origin variable is significant when there is no control for the religion of the subject; but that (c) these significant effects disappear as soon as we control for both religion and geographic origin. In other words, even with our improved pool of subjects, we cannot independently identify a significant religion effect.

Table 4, Model 4 resolves this problem. It relies on our target sample of Muslims and Christians from the same region of origin to precisely estimate the religion effect. The dependent variable for all models in Table 4 is the extent to which a dyad improves on the pure strategy Nash equilibrium (PSNE). It takes the value “1” if the players play a PSNE, “2” if they reach a weak Pareto-superior outcome, and “3” if they reach a strong Pareto-superior outcome. We run ordered probit regressions with robust standard errors. In each model, we control for socio-economic characteristics of both the sender and the receiver. Additionally, we control for whether the sender/receiver reported to know a player who played in previous sessions (Knowpastplayer) or any of her game partners (Knoweachother) in the exit questionnaire. Finally, to control for potential session effects, we use the Mundlak-Chamberlain device of including session-level averages of the dependent variable.<sup>29</sup>

The first three models in Table 4 rely only on the non-target players. As expected, due to multicollinearity, they yield results that are not interpretable. In Model 1 of Table 4, the ability of two individuals to reach a Pareto superior outcome is negatively related to having a Muslim receiver and this is significant at the 99% confidence level (when we do not control for geographic origin). In Model 2, the ability of two individuals to reach a Pareto superior outcome is negatively related to having a receiver of non-Western origin and this is significant at the 99% confidence level (when we do not control for religion). However, in Model 3, both of these significant effects disappear as soon as we control for both religion and geographic origin.

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<sup>28</sup> . In our random sample, 87.5% of North African players are Muslims, compared to only 57% of Sub-Saharan African players. In their representative sample of the French population with origins in Africa or Turkey, Brouard and Tiberj (2005, 23-25) report that 46% of the sub-Saharan respondents declared themselves Christian, and it is possible to infer from their description of the data that 34% declared themselves Muslim, while 20% do not associate themselves with one of these religions. Sub-Saharan Africa is therefore the most religiously diverse of the three regions in their study (Maghreb; Turkey; sub-Saharan Africa).

<sup>29</sup> . We thank Jeffrey Wooldridge for the advice to include in the regression the average value of the dependent variable for each game session by quartile. Categorizing by quartile, rather than by each average value, allows for the precise estimation of robust standard errors given the small sample size. Game-session fixed effects are not possible due to low sample-size.

To resolve this problem, Model 4 relies only on the targeted players. These regressions identify the independent effect of religion, holding geographic origin constant. They show that having a SM receiver increases the probability of a “sub-optimal” PSNE outcome by 63 percentage points, from 36% to 99%, and this is significant at the 99% confidence level.<sup>30</sup>

This result raises the question of whether the failure to reach a Pareto superior outcome is due to one of two mechanisms, or both: (1) senders have a lower probability of sending a strictly positive amount to Muslim receivers;<sup>31</sup> and/or (2) Muslim receivers are less prone to send back 2/3 (the strategy facilitating a strict Pareto improvement if the sender sends at least one Euro). We therefore examine the amount sent by sender (Table 5), and in a second step the amount returned by the receiver (Table 6).

For Table 5, focusing on the sender, we rely upon a difference of means test (and not regressions) because of the low sample size for instances when senders send 0 Euros. We look at the difference in the probability of a donor sending a non-zero amount when that donor is faced with a Muslim recipient and a non-Muslim recipient. The results indicate that senders do not on average send less to Muslim receivers than they do to non-Muslims. This result holds if we concentrate on the target sample in Table 4 (N=32). Table 5 therefore allows us to rule out mechanism (1) as an explanation for why we find the results we do in Table 4.

But does religion affect the percentage returned? In Table 6, the dependent variable is an ordinal variable that takes the value of “1” if the receiver sends back 0, the value of “2” if the receiver sends back 1/3 or 1 (which, as soon as the sender sends a non zero donation, leads to a weakly Pareto-superior outcome), and the value of “3” if the receiver sends back 2/3 (which, as soon as the sender sends a non zero donation, leads to a strictly Pareto-superior outcome). We use the same control variables as in Table 4. Our results show that the value of the dependent variable is significantly lower when the receiver is SM than when the receiver is SX (significant at nearly 99%). Note that there is only one observation of the 32 where the receiver sends back 1, the full amount. When we omit this observation and therefore modify the dependent variable into an increasing function sent by the receiver, the results hold. In that case, the probability of sending back 0 rather than 1/3 or 2/3 (and thereby failing to attain either weak or strong Pareto superiority) increases by roughly 61 percentage points, from 33% to 94% when the receiver is SM (and this is significant at the 99% confidence level). In other words, based on Tables 5 and 6, we find that Mechanism (2), not Mechanism (1), explains the question raised by Table 4: the attainment of a Pareto-superior outcome is less likely when the receiver is Muslim, since Muslim receivers are significantly more likely to send back nothing than are non-Muslim receivers.

Overall, our results show that Muslims in France are less able to cooperate to reach Pareto superior outcomes in trust games; they tend to hold on to their allocations when they play

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<sup>30</sup> We obtain this result by computing the marginal effect of having a SM receiver on the probability that the dependent variable in Table 4 is equal to 1.

<sup>31</sup> Note that we are looking at the probability of sending a non-zero outcome (rather than a more continuous measure of what the donor sends) because, when it comes to the sender's decision, what differentiates achieving a Pareto superior outcome vs. not is whether the sender sends a strictly positive amount (as easily observed from Table 3).

the role of receivers, whether the sender is Christian or Muslim, rather than return a significant amount such that both players come out ahead. Future papers will address the possible channels behind this result. Is this low level of cooperation on the side of Muslim immigrants an exogenous characteristic, something associated with adherents to Islam? Or is it rather a response to the hostility of indigenous French people toward Muslims whose prejudices provide the context of play? Yet even without answering the question about the channels, our results provide a small but important piece of information in understanding the dynamics of economic success in France. A randomly chosen sample would not have been able to identify this religion effect.

## VI. Conclusion

Analysts attempting to infer average group tendencies from cross-national and national survey datasets are increasingly facing challenges. In the case of studying an important policy issue regarding Muslim integration into Europe, cross national datasets combine Muslims of quite different origins to determine an average Muslim effect, a result that can obscure differences more than highlight a similar problem. And large-n national surveys rarely have the leverage to statistically distinguish Muslims from South Asians in England, Muslims from Turks in Germany, and Muslims from North Africans in France. This paper shows one of the problems in relying on random sample surveys where multicollinearity can yield inconclusive results, and suggests a matching solution, in this case by identifying a relatively small population in which a key confounding factor is naturally controlled.

To be sure, the identification strategy we have implemented does not allow us to make any general claims about the barriers to integration across Europe. Of crucial importance for purposes of public policy, an extension of this research requires replication in national settings with different integration frameworks. Replications will allow us to analyze Muslim integration in a variety of national contexts, from a case in which state policies in the 1990s were culturally pluralist (UK is a country in which 81 percent of Muslim respondents to a Pew survey in 2006 identified themselves primarily as Muslims) to a case where policies were highly republican or assimilationist in goals (France, notable for its republican ideals, is a country in which 46 percent of Muslim respondents identified themselves primarily as Muslims)<sup>32</sup>. Future replications in other countries will thereby allow for a more general understanding of the institutional and political conditions that delay/encourage socio-political integration and economic mobility.

Researchers would then be able to plot a matrix where the *y* axis represents the Muslim/Christian difference in social and economic integration in the host society and the *x* axis represents the macro political environment, from republicanism to multiculturalism. Done this way, a cross-national mapping of economic and social integration conditioned on religious difference between host and migrant society, something that has eluded sociologists for a long time, would become possible.

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<sup>32</sup> <http://pewglobal.org/reports/display.php?ReportID=254>. For the UK, perhaps Yorubas from Nigeria would be the targets. They, like Serers and Joolas from Senegal, are divided by religion but share social, cultural and economic background conditions from Nigeria. Similarly, Eritreans from a variety of language groups could serve as the targets in an Italian replication.

Thus the solution to a previously intractable measurement problem on a politically sensitive social issue – that of the integration of Muslims into Europe – involves a matching strategy, and the slow build-up of general knowledge through the plotting of the results of specific matched cases across a variety of countries, each with a different set of constraints for Muslim integration into their societies. This paper has shown that the alternative to matching – large-n country-wide investigations – may yield inconclusive results. The matching strategy has enabled us to identify a barrier to economic advance by Muslims in France.

**Table 1. Ordered probit estimates: Impact of religion and geographic origin on household's yearly income.**

Variables	Model (1)		Model (2)		Model (3)	
	<i>coeff.</i>	<i>s.e.</i>	<i>coeff.</i>	<i>s.e.</i>	<i>coeff.</i>	<i>s.e.</i>
Female	-0.104	0.066	-0.099	0.066	-0.108	0.0663
Age	-0.015**	0.005	-0.016**	0.005	-0.017**	0.005
Education	0.199**	0.021	0.240**	0.021	0.223**	0.022
Jewish	0.352^	0.196			0.466^	0.240
Asian religion	-0.180	0.172			0.0481	0.246
Muslim	-0.306**	0.070			-0.123	0.160
LAC			-0.964**	0.253	-0.958**	0.255
ASIA			-0.372**	0.136	-0.374*	0.189
MENA			-0.307**	0.073	-0.258	0.164
SSA			-0.553**	0.128	-0.505**	0.142
Observations	1053		1053		1053	
Pseudo R-squared	0.040		0.043		0.046	

The dependent variable is an ordinal variable ranging from the value “0” if the yearly household income is null to “14” if the yearly household income is greater than 68,000 Euros. *Female* is a binary variable, which takes the value “1” if the head of household is Female and “0” if the head of household is Male. *Age* is a continuous variable equal to the actual age of the head of household. *Jewish* is a binary variable, which takes the value “1” if the head of household is Jewish and “0” otherwise. *Asian religion* is a binary variable, which takes the value “1” if the head of household is Buddhist, Hindu, Shintoist or Confucianist, and “0” otherwise. *Muslim* is a binary variable, which takes the value “1” if the head of household is Muslim and “0” otherwise. *LAC* is a binary variable, which takes the value “1” if the head of household was born in Latin America and Caribbean and “0” otherwise. *ASIA* is a binary variable, which takes the value “1” if the head of household was born in Asia and “0” otherwise. *MENA* is a binary variable, which takes the value “1” if the head of household was born in Middle East North Africa and “0” otherwise. *SSA* is a binary variable, which takes the value “1” if the head of household was born in Sub-Saharan Africa and “0” otherwise. The variable *Christian* (a binary variable, which takes the value “1” if the head of household is Christian and “0” otherwise) is the reference group for the set of “religion” variables. The variable *Western* (a binary variable, which takes the value “1” if the head of household was born in Western countries and “0” otherwise) is the reference group for the set of “geographic origin” variables. Standard errors are robust. Coefficients in red highlight the effect of multicollinearity in Models (1) through (3). Stars indicate coefficient significance levels (two-tailed): \*\* p<0.01, \* p<0.05, ^ p<0.1.

**Table 2. Ordered probit estimates: Impact of religion on household's monthly income.**

<i>Variable</i>	<i>coefficient</i>	<i>standard error</i>
Christian household	0.357**	0.127
Head of household's gender	0.293*	0.120
Head of household's education	0.055*	0.025
Education of the first migrant	0.022	0.035
Pseudo R <sup>2</sup>		0.017
Observations		312

The dependent variable is an ordinal variable ranging from the value "1" if the monthly household income is lower than 500 Euros to "9" if the monthly household income is greater than 7,500 Euros. *Christian household* is a binary variable, which takes the value "1" if the household is Christian and "0" if the household is Muslim. *Head of household's gender* is a binary variable, which takes the value "1" if the head of household is Male and "0" if the head of household is Female. *Head of household's education* controls for the level of education of the head of household. This is an ordinal variable ranging from the value "1" for no schooling to "8" for post-secondary education. The variable *Education of first migrant* controls for the level of education of the head of household's ancestor who was the first to migrate to France, and thus absorbs the differences in current family income due to initial differences in human capital. This is an ordinal variable ranging from the value "1" for no schooling to "6" for post-secondary education. Results hold when we control for the subject's ethnicity. Standard errors are robust. Stars indicate coefficient significance levels (two-tailed): \*\* p<0.01, \* p<0.05, ^ p<0.1.

**Table 3. Payoffs from the Trust Game**

Receiver	0	1/3	2/3	1
Sender				
0	3,0*	3,0*	3,0	3,0
1	2,3	3,2	4,1	5,0
2	1,6	3,4	5,2	7,0
3	0,9	3,6	6,3	9,0

Sender in the Trust Game is given 3 Euros and chooses to send  $s_i = \{0, 1, 2, 3\}$  Euros to the receiver. The amount  $s_i$  is then tripled, such that the receiver collects an amount  $3*s_i$ . Receiver in the Trust Game chooses to return a fraction  $r_i = \{0, 1/3, 2/3, 1\}$  of the amount  $3*s_i$ . The matrix above displays all possible outcomes based on the sender and the receiver's simultaneous decisions. The first number in each cell is that earned by the sender. The second number is that earned by the receiver. Stars indicate Pure Strategy Nash Equilibria (PSNE) outcomes. Cells in blue shading indicate outcomes that constitute weak Pareto improvements to the PSNE. Cells in red shading indicate outcomes that constitute strong Pareto improvements to the PSNE.

**Table 4. Ordered probit estimates: Impact of religion on the achievement of a Pareto-superior outcome in the Trust Game.**

Variables	NON-TARGET				TARGET			
	Model (1)		Model (2)		Model (3)		Model (4)	
	<i>coeff.</i>	<i>s.e.</i>	<i>coeff.</i>	<i>s.e.</i>	<i>coeff.</i>	<i>s.e.</i>	<i>coeff.</i>	<i>s.e.</i>
Sender:								
Female	0.551	0.532	0.409	0.344	0.396	0.673	-1.194	1.053
Age	-0.005	0.012	-0.013	0.012	-0.008	0.012	-0.024	0.037
Income	0.015	0.095	0.001	0.089	0.016	0.096	0.220	0.178
Education	-0.101	0.107	-0.159	0.105	-0.115	0.110	0.257 <sup>^</sup>	0.145
Muslim	-0.182	0.317			0.180	0.564		
Religiosity	0.100	0.106			0.106	0.101	0.492 <sup>^</sup>	0.270
Knowpastplayer	-1.544*	0.712	-1.453*	0.735	-1.587*	0.718	0.496	1.193
Non-Western			-0.246	0.372	-0.465	0.659		
Sen. Muslim							0.848	1.141
Receiver:								
Female	0.227	0.458	-0.892*	0.396	-0.214	0.616	2.440	1.514
Age	-0.005	0.013	-0.013	0.014	-0.009	0.014	0.002	0.032
Income	-0.035	0.088	0.005	0.084	-0.017	0.090	0.014	0.148
Education	0.165	0.103	0.041	0.097	0.128	0.110	0.101	0.187
Muslim	-0.969**	0.355			-0.505	0.700		
Religiosity	0.244*	0.106			0.204 <sup>^</sup>	0.115	-0.158	0.250
Knew player	0.631 <sup>^</sup>	0.364	0.876*	0.373	0.707 <sup>^</sup>	0.368	0.429	1.397
Non-Western			-1.059**	0.408	-0.677	0.836		
Sen. Muslim							-1.997*	0.804
Knoweachother	Dropped		dropped		dropped		-0.020	1.158
Observations	68		68		68		32	
Pseudo R-squared	0.157		0.125		0.163		0.383	

The dependent variable takes the value “1” if the players play a Pure Strategy Nash Equilibrium, the value “2” if the players play a weak Pareto-Superior outcome, and the value “3” if the players play a strong Pareto-superior outcome. *Female* is a binary variable, which takes the value “1” if the sender/receiver is Female and “0” if sender/receiver is Male. *Age* is a continuous variable equal to the actual age of the sender/receiver. *Income* is an ordinal variable ranging from the value “1” for a household monthly income below 500 Euros to “11” for a household monthly income above 7,500 Euros. *Education* is an ordinal variable ranging from the value “1” for no education to “9” for post-secondary education. *Muslim* is a binary variable, which takes the value “1” if the sender/receiver is Muslim and “0” if the sender/receiver is Christian. *Religiosity* is an ordinal variable ranging from the value “1” if the sender/receiver never attends religious services to “7” if the sender/receiver attends religious services several times per week. *Knowpastplayer* is a binary variable, which takes the value “1” if the sender/receiver knows participants from a previous experimental session and “0” otherwise. *Senegalese Muslim* is a binary variable, which takes the value “1” if the sender/receiver is Senegalese Muslim and “0” if the sender/receiver is Senegalese Christian. *Knoweachother* is a binary variable, which takes the value “1” if the sender and the receiver know each other and “0” otherwise. It is dropped in Models (1) through (3) because no player played with a partner s/he knew. Results in Models (1) through (4) are consistent with difference-of-means tests, which are not presented here but are available upon request. Results in Model (4) hold when we control for the subject’s ethnicity (the targets are a sample from two linguistic communities with Senegalese origins, each of which has Catholic and Muslim members), although including a control for ethnicity yields imprecise standard errors because the distribution of target respondents by ethnic group is highly unbalanced. (For this reason, we also run this specification using a linear model, and the results hold.) Standard errors are robust. Coefficients in red highlight the effect of multicollinearity in Models (1) through (3), and the solution achieved by our identification strategy in Model (4). Stars indicate coefficient significance levels (two-tailed): \*\* p<0.01, \* p<0.05, <sup>^</sup> p<0.1.

**Table 5. Difference in the probability (%) of a non-zero donation by the sender when facing a Muslim and a non-Muslim receiver**

<i>Population</i>	<i>Muslim receiver</i>	<i>Non-Muslim receiver</i>	<i>Difference</i>	<i>H<sub>0</sub></i>
Senegalese Christian and Muslim targets	92.59 (N=27)	89.47 (N=19)	3.12	Fail to reject (p=0.719)

*Muslim receiver* refers to the probability of a non-zero donation by the sender when facing a Muslim receiver. *Non-Muslim receiver* refers to the probability of a non-zero donation by the sender when facing a non-Muslim receiver. Means tests were conducted using two-tailed t tests with paired variances for the two scenarios. For  $H_0$ , means are equal for the scenario where the sender faces a Muslim receiver and for the scenario where the sender faces a non-Muslim receiver. The rejection of  $H_0$  also fails if we concentrate on the target sample in Table 4 (N=32), which is limited to observations with no missing values on all explanatory variables.

**Table 6. Ordered probit estimates: Impact of religion on the amount returned by the receiver in the Trust Game.**

Variables	Model	
	<i>coefficient</i>	<i>standard error</i>
Sender:		
Female	-0.427	0.871
Age	0.019	0.034
Income	0.302	0.198
Education	0.217	0.145
Senegalese Muslim	0.284	1.040
Religiosity	0.141	0.284
Knowpastplayer	0.881	1.322
Receiver:		
Female	2.393**	0.855
Age	-0.027	0.041
Income	0.008	0.170
Education	0.229	0.155
Senegalese Muslim	-2.102*	0.868
Religiosity	-0.289	0.254
Knowpastplayer	-0.017	1.412
Knoweachother	-0.299	1.035
Observations	32	
Pseudo R-squared	0.381	

The dependent variable takes the value “1” if the receiver sends back 0, the value “2” if the receiver sends back 1/3 or 1, and the value “3” if the receiver sends back 2/3. *Female* is a binary variable, which takes the value “1” if the sender/receiver is Female and “0” if sender/receiver is Male. *Age* is a continuous variable equal to the actual age of the sender/receiver. *Income* is an ordinal variable ranging from the value “1” for a household monthly income below 500 Euros to “11” for a household monthly income above 7,500 Euros. *Education* is an ordinal variable ranging from the value “1” for no education to “9” for post-secondary education. *Senegalese Muslim* is a binary variable, which takes the value “1” if the sender/receiver is Senegalese Muslim and “0” if the sender/receiver is Senegalese Christian. *Religiosity* is an ordinal variable ranging from the value “1” if the sender/receiver never attends religious services to “7” if the sender/receiver attends religious services several times per week. *Knowpastplayer* is a binary variable, which takes the value “1” if the sender/receiver knows participants from a previous experimental session and “0” otherwise. *Knoweachother* is a binary variable, which takes the value “1” if the sender and the receiver know each other and “0” otherwise. Results are consistent with difference-of-means tests, which are not presented here but are available upon request. Results hold when we control for the subject’s ethnicity (the targets are a sample from several linguistic communities with Senegalese origins, each of which has Catholic and Muslim members), although including a control for ethnicity yields imprecise standard errors because the distribution of target respondents by ethnic group is highly unbalanced. (For this reason, we also run this specification using a linear model, and the results hold). Standard errors are robust. Stars indicate coefficient significance levels (two-tailed): \*\* p<0.01, \* p<0.05, ^ p<0.1.

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## Appendix

**Table 1. Descriptive statistics for variables in Table 2**

<i>Variable</i>	<i>Observations</i>	<i>Mean</i>	<i>S.D.</i>	<i>Min.</i>	<i>Max.</i>
Household monthly income	461	5.15	1.66	1	9
	312	5.10	1.64	1	9
Christian household	509	0.29	0.45	0	1
	312	0.32	0.47	0	1
Head of household's gender	439	0.67	0.47	0	1
	312	0.65	0.48	0	1
Head of household's education	400	4.63	2.63	1	8
	312	4.74	2.68	1	8
Education of the first migrant	397	3.00	1.82	1	6
	312	3.02	1.85	1	6

For each variable, the first row presents descriptive statistics over the whole sample (N=511) while the second row presents descriptive statistics over the regression sample used in Table 2 (N=312).

**Table 2. Descriptive statistics for variables in Tables 4, 5 and 6**

<i>Variable</i>	<i>Observations</i>	<i>Mean</i>	<i>S.D.</i>	<i>Min.</i>	<i>Max.</i>
Pareto superior outcome (DV for Table 4)	381	1.95	0.72	1	3
	68	1.85	0.68	1	3
	32	1.78	0.83	1	3
Strictly positive donation (DV for Table 5)	386	0.91	0.29	0	1
	68	0.91	0.29	0	1
	32	0.88	0.34	0	1
Amount returned (DV for Table 6)	381	2.03	0.69	1	3
	68	1.99	0.66	1	3
	32	1.84	0.81	1	3
Female	92	0.51	0.50	0	1
	33	0.61	0.50	0	1
	16	0.31	0.48	0	1
Age	92	36.85	13.05	18	72
	33	38.55	14.63	19	72
	16	31.63	10.35	18	61
Income	85	4.72	2.24	1	9
	33	4.91	2.18	1	9
	16	3.94	2.54	1	8
Education	88	8.38	2.11	2	10
	33	8.61	2.00	3	10
	16	7.44	2.80	2	10
Muslim	89	0.36	0.48	0	1
	33	0.33	0.48	0	1
	16	0.56	0.51	0	1
Religiosity	87	2.59	1.79	1	7
	33	2.91	1.86	1	7
	16	3.38	1.5	2	6
Non Western	89	0.44	0.50	0	1
	33	0.48	0.51	0	1
	NA	NA	NA	NA	NA
Know past player	92	0.04	0.21	0	1
	33	0.03	0.17	0	1
	16	0.06	0.25	0	1
Know each other	386	0.02	0.15	0	1
	68	0.00	0.00	0	0
	32	0.13	0.34	0	1

For each variable except the DVs for Table 4, 5 and 6 and the variable “know each other”, the unit of observation is the individual: the first row presents descriptive statistics over the whole sample (N=92), the second row presents descriptive statistics over the random sample (N=33) and the third row presents descriptive statistics over the target group (N=16). For the DVs for Table 4, 5 and 6 and the variable “know each other”, the unit of observation is the dyad: the first row presents descriptive statistics over the whole sample (N=386), the second row presents

descriptive statistics over the random sample (N=68) and the third row presents descriptive statistics over the target group (N=32).