

## Interreligious Contacts and Attitudes towards the Religious Out-group: Contact Hypothesis and Selectivity Bias in Southeast Asia

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### *Abstract*

*This study examines the relationship between interreligious contacts and negative attitudes towards the religious out-group. It contributes to the existing research on the contact hypothesis by (1) focusing on particularly relevant but understudied context, i.e., ethnic and religiously diverse regions of Indonesia and the Philippines, (2) moving beyond positive contacts to consider extremely negative encounters, namely, interreligious violence, (3) providing further evidence for a causal relationship between interreligious friendships and negative attitudes towards the religious out-group. The analysis is based on unique survey data collected by the authors among Christian and Muslim students in Maluku and Yogyakarta (Indonesia) and metro-Manila and Mindanao (the Philippines). Even after taking selection effects into account, interreligious friendships reduce negative attitudes towards the religious out-group. The positive contact effect is less true regarding casual contacts, however. As hypothesized, people who experienced interreligious violence have more negative attitudes towards the religious out-group than those without such experience. However, most of the effect of interreligious violence on out-group attitudes is indirect, through increased perception of group threat. Experience of violence also significantly deteriorates less intimate, casual contacts with religious out-group members, so they increase negative attitudes towards the religious out-group.*

In almost all parts of the world, there has been resurgence in religion-related conflict and religiously-motivated intolerance and violence (PEW Research Center 2012). For example, in the city of Ambon, Indonesia, an outbreak of sectarian violence between Christians and Muslim between 1999 and 2002 has been blamed for the death and displacement of hundreds of thousands of people. Religion-related conflicts in West Bank, Mindanao, Nigeria, Northern Ireland, and Sudan are but few other examples. Finding ways to reduce acts of religiously-motivated intolerance and violence is thus of critical importance. One influential idea is to increase contact between members of religious groups, which is hypothesized to induce positive attitudes towards the religious out-group (Allport 1954). Although empirical research has sometimes yielded discrepant results, in general there is ample evidence that intergroup contact improves attitudes towards both the specific individuals involved in contact and the outgroup as a whole (Lee, Farrell, and Link 2004; McLaren 2003; Savelkoul et al. 2011; Powers and Ellison 1995; Sigelman and Welch 1993). Allport's original conditions for the positive contact effect - equal status, common goals, cooperation and authority support – facilitate the contact effect, but are

not necessary conditions. Intimate contacts such as intergroup friendship are likely to encompass most of Allport's conditions and is, in particular, helpful for reducing negative attitudes towards the out-group (Pettigrew and Tropp 2006; Pettigrew et al. 2011). However, to date previous research on contact hypothesis has been limited in a number of ways.

First, most empirical studies in recent years have been conducted in the Western countries, in particular in the United States and have focused on racial or ethnic target groups (Pettigrew 2008). For instance, among 515 studies on intergroup contact hypothesis reviewed by Pettigrew and Tropp (2006), 71 percent of the studies focused solely on the United States and 51 percent focused on ethnic and racial groups. Thus, little is known whether the same patterns equally hold in different social and religious contexts, i.e., Indonesia and the Philippines, where social cleavages occur along religious lines.

Second, most previous empirical research concentrated predominantly on factors that maximize the potential for contact to reduce prejudice and promote positive intergroup outcomes (Pettigrew 2008; Pettigrew and Tropp 2006): negative contact experiences are absent in most research designs (Dixon, Durrheim, and Tredoux 2005; Pettigrew 2008; Pettigrew and Tropp 2006). However, as argued by Pettigrew and Tropp (2006: 767) "factors that curb contact's ability to reduce prejudice are now the most problematic theoretically, yet the least understood. These negative factors deserve to become a major focus of future contact research." However, thus far, very few studies have considered the negative contact effect, as such measures are rarely available in data.

Third, although meta-analytic evidence, including results from experimental and longitudinal studies, shows that intergroup contact reduces intergroup prejudice, these studies suggest that selection processes are important as well (e.g., Levin, Van Laar and Sidanius 2003; Sidanius et al. 2004). People with initially tolerant attitudes are more likely to engage in intergroup contacts, while less tolerant persons are more likely to avoid such contacts. If this interpretation is accurate, the positive association between intergroup contact and out-group attitudes reported in cross-sectional research (partly) reflects a selection effect. According to Pettigrew (2008), addressing selection processes in testing contact hypothesis should be a central focus in future research on intergroup contact.

Our research contributes to the existing research on the contact hypothesis in three ways. First, it focuses on particularly relevant but understudied context, that is, ethnic and religiously diverse regions of Indonesia and the Philippines. Second, it moves beyond positive intergroup contacts to consider extremely negative encounters, namely experience of interreligious violence. Third, it provides further evidence for the causal relationship between interreligious friendships and negative attitudes towards the religious out-group. Specifically, in the absence of longitudinal data, this study proposes the treatment effect model (Guo and Fraser 2010) to examine the issues of causality and selectivity that have limited much of previous research on contact hypothesis.

We use unique survey data from a large random sample of Christian and Muslim students in Maluku and Yogyakarta (Indonesia) and metro-Manila and Mindanao (the Philippines). The four

regions provide an excellent case for examining the relationship between interreligious contacts and attitudes towards the religious out-group. The regions are characterized by the presence of different ethno-religious groups, which are alternating in majority/minority positions (at both local and national levels), power and status relations, and have specific histories of group conflicts, which enable us to test the contact hypothesis more rigorously and in a dramatically different context.

## ETHNO-RELIGIOUS CONFLICTS AND SEGREGATION IN RESEARCH REGIONS

In this study, we focus on four ethnically and religiously diverse regions, i.e., Yogyakarta (central Java) and Maluku in Indonesia, metro-Manila and Autonomous Region in Muslim Mindanao (ARMM)<sup>1</sup> in the Philippines. While 87.2 percent of the population in Indonesia is Muslim, the province of Maluku is historically a mainly Christian region, with a substantial Muslim population. In the Philippines, on the other hand, about 92.5 percent of the population is Christian (mainly Roman Catholic), while in ARMM approximately 90 percent of the population is Muslim.<sup>2</sup>

Whereas Yogyakarta and metro-Manila have had relatively peaceful histories of religious cleavages, Maluku and ARMM have had serious interreligious conflicts.<sup>3</sup> Until 1999, Christian and Muslim communities in Ambon, capital of Maluku province, lived in relative harmony. However, there were already strong resentments between religious groups, especially between internal migrants and the original population. Muslims, who constitute now about 40 percent of the population in Ambon, felt resentful about Christians' privileged position during the Dutch colonial period. Christians feared that an influx of Muslims from other parts of Indonesia would make them a vulnerable minority. These resentments were suppressed under the authoritarian rule of the former President Suharto, but after his downfall in 1998, they gave way to ethno-religious conflict. The sectarian conflict in 1999-2002 cost the lives of 5,000 people and displaced close to 700,000 others (ICG 2002).

Although Ambon has been relatively peaceful since a settlement signed in 2002, at the time of the data collection (fall 2011), there were incidents of clashes between religious communities. Only due to these events, more than 4,000 people were displaced with some having lost their homes for the fourth time in twelve years (ICG 2011). According to International Crisis Group (ICG 2011: 1), contemporary Ambon is a tense, violent and divided city. The two religious communities are largely segregated. Where the two groups mix, i.e., in the state university, government and a few large markets, there is a preoccupation with communal balance. The fact that Ambon is one of the poorest provinces in Indonesia, with a high population density and a steady influx of economic migrants from Southeast Sulawesi, does not help to improve the situation.

Religious segregation is also present in relatively peaceful Yogyakarta, although to a lesser extent. Religious segregation, of which much is stimulated by the Indonesian government, mainly takes place in education, health care and marriage (Steenbrink 2004). For instance, according to

Indonesian marriage law, interreligious marriage is illegal, and importance of religious studies in the educational curriculum in Indonesia makes it problematic if students enroll in schools of different than their own denomination (Steenbrink 2004: 237-238).

The conflict in Mindanao can be described as a struggle for the maximum regional autonomy between the Moro Islamic Liberation Front (MILF) and the Government of the Republic of the Philippines. Although religious differences are not the root of this conflict, religious identification together with social, economic and political inequalities triggers it (Concepcion et al. 2003; Zartman 2011).

Noteworthy, the predominantly Muslim areas of Mindanao are the country's poorest regions with the lowest per capita income and the least access to basic services such as water and sanitation, electricity and health care. This economic disadvantage serves as a symbol of government discrimination and neglect of Muslim Mindanao and facilitates a division of the Filipino society into a predominantly Christian North and a predominantly Muslim South (Concepcion et al. 2003; Zartman 2011).

Recently, on 15 October 2012 a peace agreement including a framework of autonomy of Bangsamoro was signed between the Philippine government and the MILF. It remains to be seen whether this agreement will transform the alternating periods of armed violence and cease-fires into enduring peace. Nevertheless, there is a high level of religious segregation in conflict-affected areas of Mindanao accompanied with feelings of distrust and disappointment between Christians and Muslims (Zartman 2011). Religious segregation takes also place in relatively peaceful metro-Manila, where a few Muslims live in certain neighborhoods (Watanabe 2007: 88ff).

## INTERRELIGIOUS CONTACT AND ATTITUDES TOWARDS THE RELIGIOUS OUT-GROUP

### *Contact hypothesis*

The contact hypothesis proposes that contact, in particular close contact with members of the out-group, promotes positive attitudes towards this group (Allport 1954).<sup>4</sup> One explanation for the positive contact effect is that intergroup contacts enable individuals to learn more about the out-group. It is argued that when learning about the out-group takes place through regular interactions with out-group members such as out-group neighbors, colleagues, and friends, the acquired information is likely to be accurate and largely favorable in content (Powers and Ellison 1995; Sigelman and Welch 1993).

Recent meta-analytic evidence suggests that although increased knowledge about the out-group does explain some of the relationship between intergroup contact and out-group attitudes, it is of minor importance (Pettigrew and Tropp 2008). Two other mechanisms: empathy with the out-group and reduction of intergroup threat and anxiety are far more important. Specifically, several studies have shown that intergroup contact, in particular intimate contact, enables people to empathize with

and take the perspective of the out-group, which in turn reduces negative attitudes towards the out-group (Batson, Early, and Salvarani 1997; Batson et al. 1997; Lee et al. 2004).

Anxiety refers to feelings of threat and uncertainty that people experience in intergroup contexts. These feelings arise from concerns about how they should behave and how they will be perceived by members of the own group and the out-group (Stephan and Stephan 1985). It has been shown that positive intergroup contacts can help to reduce the anxiety by defining the roles and norms of intergroup relations and so improve intergroup attitudes (Paolini et al. 2004; Stephan et al. 2002, 2000).

#### *Types of interreligious contacts*

Clearly not all intergroup contacts will enhance (positive) knowledge about the out-group, reduce intergroup anxiety and increase empathy and perspective taking, resulting in improved attitudes towards the out-group. It has been suggested, for instance, that the positive contact effect is in particular true for intimate contacts, such as close friendships. Intimate contacts with members of the religious out-group are likely to involve three out of four Allport's original conditions, namely equal status, cooperation and common goals, which can help to facilitate the positive attitudes towards the religious out-group (Pettigrew 1998; Pettigrew and Tropp 2006). Hewstone and colleagues (2006) have shown that even among those who experienced long-term sectarian conflict in Northern Ireland, interreligious friendships were related to increased positive attitudes towards the religious out-group.

Although meta-analytic evidence suggests that less intimate, casual contacts with other religious groups are also likely to improve attitudes towards the religious out-group (Pettigrew and Tropp 2006), we expect their effect to be smaller than that of intimate contacts. One reason for this is that casual contacts will often lack the facilitating conditions for the positive contact effect, in particular equal status, common goals and cooperativeness, thus making the positive effect of casual contact on out-group attitudes less likely (Hamberger and Hewstone 1997; Powers and Ellison 1995). Another reason is that casual interreligious contacts with one's neighbors, classmates, or dormmates, even frequent casual contacts, may remain superficial and do not extend beyond a particular contact situation (Pettigrew and Tropp 2006; Siegelman and Welch 1993). Based on the foregoing, we hypothesize that intimate interreligious contacts decrease the negative attitudes towards the religious out-group (*Hypothesis 1*). We also expect that casual interreligious contacts decrease the negative attitudes towards the religious out-group, but less so than intimate contacts (*Hypothesis 2*).

Despite general support for the idea that intergroup contact improves attitudes towards the out-group (Pettigrew and Tropp 2006), studies have showed that living in ethnically diverse areas, which provide the largest opportunities for intergroup contact, increases out-group discrimination and prejudice (Quillian 1995, 1996; Scheepers, Gijssberts, and Coenders 2002). It can be argued that racially diverse neighborhoods create opportunities for both negative and positive intergroup contact, and that negative intergroup contact increases negative attitudes towards the out-group (Barlow et al.

2012). In a recent experimental study, Barlow and colleagues (2012) showed that negative interethnic contact is more associated with negative attitudes toward the ethnic out-group than positive contact is with their reduction.

This study contributes to the growing evidence on this issue by focusing on not only positive but also negative interreligious contact. While relationships between Christians and Muslims in Yogyakarta and metro-Manila have been relatively peaceful, there has been a long and continuing history of religion-related conflict in Maluku and Mindanao. Consequently, about one third of all respondents in our sample (N=744) have experienced extremely negative contact in the past, namely events of interreligious violence, which caused injury or death. Clearly, such negative interreligious contact experiences will have an adverse effect on the attitudes towards the religious out-group. Thus, we hypothesize that negative interreligious contacts increase the negative attitudes towards the religious out-group (*Hypothesis 3*).

#### *Mediators and moderators of interreligious contacts*

According to realistic group threat theory (RCT), competition over scarce resources and conflict between cultural values between groups induce perceptions of out-group threat, which in turn create hostility towards the out-group (Blalock 1967). Supporting this hypothesis is research showing a relatively consistent relationship between perception of group threat and anti-immigrant attitudes and racial prejudices (Dixon 2006; McLaren 2003; Quillian 1995; Scheepers et al. 2002; Stephan et al. 2002).

In this study we focus on the perceived group threat as a mechanism explaining the effect of interreligious contacts on attitudes towards the religious out-group. While intimate contacts may reduce, experience of interreligious violence may awaken or reinforce concerns about intergroup access to valued resources, i.e., land ownership, control over natural resources, and facilitate value and belief differences between religious groups. For example, in a study on interracial attitudes in the U.S., Stephan and colleagues (2002) showed that the more negative contact White and Black students had had with members of the other group (e.g., being insulted, physically harmed, and harassed), the more threat and intergroup anxiety they reported. On the other hand, in another study in Europe, McLaren (2003) showed that intimate contacts with immigrants not only *directly* reduced anti-immigrant attitudes but also had an indirect (negative) effect on the perception of threat in the context of high immigration. These studies suggest that interreligious contacts have an effect on attitudes towards the religious out-group that is mediated by the perception of threat. Based on the foregoing, we hypothesize that perceived group threat (partly) explains the effect of interreligious contacts on attitudes towards the religious out-group (*Hypothesis 4*).

We also examine a possibility that experience of interreligious violence affects the relationship between intimate and casual interreligious contacts and attitudes towards the religious out-group. Specifically, we expect that the (presumed) negative effect of intimate and, in particular, casual

interreligious contacts on negative attitudes towards the religious out-group decreases with negative contact experience. Although sectarian violence may preclude intimate contact with members of the religious out-group, casual contacts may still take place (on the street, at the market). However, casual contacts, taking place under competitive and hostile conditions, will be superficial and not extend beyond contact situation, and so insufficient to change the attitudes towards the religious out-group. Based on the foregoing, we hypothesize that interreligious contacts, and in particular casual contacts, are less likely to reduce negative attitudes towards the religious out-group among those who experienced negative interreligious contact than among those without such experience (*Hypothesis 5*).

## THE SELECTION PROBLEM IN RESEARCH ON THE CONTACT HYPOTHESIS

One of the limitations of previous contact literature is a failure to account for a possible selectivity of people with intergroup contacts (Pettigrew 2008; Powers and Ellison 1995). If more tolerant people are more likely to engage in interreligious contacts and to have more positive attitudes towards the religious out-group, while the less tolerant people have fewer contacts and more negative out-group attitudes, the positive relationship between contacts and attitudes in previous research on intergroup contact could be biased. In assessing the effect of interreligious contacts and out-group attitudes, we assume that a possible selection bias is the most problematic in estimating the net effect of intimate interreligious contacts (Granovetter 1973; Marsden 1988). Clearly, respondents participating in this study had little choice to avoid negative interreligious contact, i.e., interreligious violence. Likewise, because of geographical convergence of Christians and Muslims in all research areas, but metro-Manila, it is likely that the respondents had relatively little choice to avoid having casual interreligious contact (i.e., neighbors, classmates, dormmates). For instance, Blum (1985) showed that even in the presence of in-group preferences that engender in-group ties, interreligious contacts were more likely in heterogeneous environments than in less diverse ones. Thus, although we do not exclude a possibility that some respondents may avoid casual contacts with members of the religious out-group, we assume that the nonrandom choice of interreligious friends and a related possible selection bias are more problematic for the analysis.<sup>5</sup>

## DATA AND METHODS

### Data

The analysis is based on the survey data “Ethnic and Religious Conflicts in Indonesia and the Philippines (ERCIP) collected by the authors in Indonesia and the Philippines between September and November 2011. The surveys were specifically designed to study individual and contextual determinants of latent conflicts ranging from negative attitudes towards the religious out-group to

support of ethno-religious violence. In order to facilitate comparability between countries, we selected regions with comparable levels of economic development and living standards<sup>6</sup>, where Christian and Muslim groups alternate in majority and minority position (at both local and national levels), power and status; have specific histories of collective conflicts; and are characterized by different levels of migration. Because of this design, the ERCIP surveys provide an excellent opportunity to examine the effect of intergroup contact in particularly relevant yet understudied context, and so to test the contact hypothesis more rigorously. What is in particular relevant for this study, the data include a rich source of information on attitudes towards the religious out-group and various types of interreligious contacts in different social settings, i.e., dormitory, university, neighborhood.

The ERCIP surveys were collected among the second and third year bachelor students in universities in Yogyakarta, Ambon (Maluku), metro-Manila and Marawi, Cotabato, and Iligan (in and around ARMM). In each region three universities were selected: a public (state) university (with a majority of Muslim or Christian students dependent on the country); an Islamic university with a majority of Muslim students; and a Christian university with a majority of Christian students.<sup>7</sup> We deliberately selected public and denominational universities to have sufficient number of Christian and Muslim students in each region. In each university a random sample of 250 students from enrollment lists took place, which resulted in a total of 3000 respondents. Because of a very small number of Muslim respondents in metro-Manila, an additional nonrandom sample of Muslims was added.<sup>8</sup> The response rate varied among countries and research regions; it was the highest in Ambon city (63.1 percent) and the lowest in metro-Manila (41.6 percent).

The analysis is restricted to male and female students who reported to be either Muslim or Christian (96.7 percent of the sample) and had valid observations on all variables included in the analysis (N=2423). Although our sample includes university students from two regions per country, the students represent some diversity in terms of sex, ethnic group, socio-economic status (as indicated by parental education and household income), and with respect to Yogyakarta and metro-Manila, in geographical origin.

### *Dependent variables*

The attitudes variables measure (1) the negative attitudes towards the religious out-group (Sterkens and Anthony 2008), and (2) the preference for residential segregation (Semyonov, Glikman, and Krysan 2007; Tabory 1993). These two attitudinal outcomes are in line with a distinction between cognitive and behavioral components of out-group attitudes (see Sandefur and Lam 1985 for a discussion of the difference between these two components) and have implications for likely patterns of intergroup discrimination and inequality (Bobo and Zubrinsky 1996; Quillian 2006).

*The negative attitudes* towards the religious out-group were measured by three negative statements with answers ranging from 1 (totally disagree) to 5 (totally agree): “Christians (Muslims)

only talk about doing good deeds without practicing them”, “When it comes to religion, Christians (Muslims) are less tolerant”, “Christians (Muslims) are often the cause of religious conflict.”

*The preference for residential segregation* is measured by three statements with answers ranging from 1 (totally disagree) to 5 (totally agree): “I prefer to live in a neighborhood inhabited by persons of the same religion”, “For the good of the city, people should reside in separate communities according to their religion”, and “There should be separate neighborhoods where Muslims and Christians can live separately.”

The factor analysis with oblique rotation yielded a two-factor structure representing two distinct attitudinal outcomes: negative attitudes and preference for residential segregation. The variables were, therefore, averaged to form two reliable scales: the negative attitudes (Christians:  $\alpha=.73$ ; Muslims:  $\alpha=.78$ ) and the preference for residential segregation (Christians:  $\alpha=.70$ ; Muslims:  $\alpha=.75$ ). The two scales are weakly correlated  $r=.37$ . A higher score indicates stronger negative attitudes/preference for residential segregation. The mean response to the negative attitudes was 2.71 and a standard deviation of .81, and the mean response to the preference for residential segregation was 2.89 and a standard deviation of .85.

#### *Independent variables*

We distinguish between positive and negative interreligious contacts: intimate contacts and experiences of violence. *Intimate contacts* were measured by the following variables: “How many of your close friends are Christians (Muslims)” ranging from 1 (none) and 5 (all) and “In the past year, how often did you have contact with Christians (Muslims) as close friends” ranging from 1 (never) to 6 (several times a day). Based on this information, we constructed a dichotomous variable 1 if (at least) some of the respondent’s friends are from the religious out-group and the respondent had (at least) some contact with them in the last year, and 0 otherwise. The dichotomization of the intimate contact variable is a necessary requirement to address the problem of self-selection bias in the treatment effect model. Dichotomous measure of intergroup friendship has been also widely used in other studies examining the contact hypothesis (Ellison and Powers 1994; Powers and Ellison 1995; Wilson 1996). About 57% of respondents have intimate interreligious contact.<sup>9</sup>

*Negative contact* is measured by 9 dichotomous variables asking whether the respondents or their family members, friends or neighbors suffered any kind of physical injury or death due to interreligious violence in the past 10 years. Based on this information, we constructed a dichotomous variable 1 if the respondent gave a positive response to (at least) one item. Notwithstanding that this is an extremely negative experience of intergroup contact, about 31% of respondents in the ERCIP survey had experienced such contact.<sup>10</sup>

In addition to the positive and negative interreligious contact, we include two additional measures of contacts with the religious out-group: casual interreligious contacts and relative size of the religious group. *Casual contacts* were measured by three variables with answers ranging from 1 (never) to 6 (several times a day). The first variable was “In the past year, how often did you have contact with

Christians (Muslims) as neighbors?” The two other variables were the same except that they referred to contacts with classmates and dorm mates<sup>11</sup>. The quantity of contacts variables were averaged to form a reliable scale (Christians:  $\alpha=.70$ ; Muslims:  $\alpha\geq.74$ ). A higher score on the scale indicates more frequent casual interreligious contacts. *The relative size of the religious group* on the regional level was measured by a dichotomous variable 1 if religious group has a majority status in the region, and zero otherwise. It can be argued that social contexts enhance or constrain opportunities for interreligious contact (Blum 1985; Lee et al. 2004), and hence may influence out-group attitudes indirectly.

*Perceived group threat* was measured by nine items ranging from 1 (totally disagree) to 5 (totally agree) such as “I am worried that job prospects for members of my group would decline due to the presence of other religious groups,” “I am worried that study grant opportunities will decline due to the presence of other religious groups,” and “I am afraid that customs of my group will be lost due to the presence of other religious groups” (see appendix for the list of all items). These items have been successfully used in other studies to measure perceived threat posed by ethnic minority groups (Gijssberts, Hagendoorn, and Scheepers 2004; Scheepers et al. 2002; Schneider 2008). These variables are highly interrelated and load on a single factor using factor analysis with oblique rotation. We averaged the variables to form a reliable scale ( $\alpha=.92$  for both groups). A higher score indicates stronger perceived group threat.

We also control for the influence of religious group (1 = Muslim) and background factors that are established predictors of out-group attitudes (Coenders and Scheepers 1998; Dixon 2006; Powers and Ellison 1995): gender (1 = male) and parental education (4-point scale), that varies for the students whereas their own educational level does not.

Table 1 presents descriptive statistics for the independent and dependent variables. We checked for high multicollinearity among the independent variables, but correlations did not exceed critical levels.<sup>12</sup>

#### TABLE 1 ABOUT HERE

#### *Addressing selective interreligious friendships*

This study examines the association between interreligious contacts and out-group attitudes, while controlling for a possible selectivity of respondents with interreligious friends. The extent to which having interreligious friends is nonrandom, can be investigated with the treatment effect model (Guo and Fraser 2010: 85-125). The treatment effect model is a variant of the classical Heckman selection model (Heckman 1979), however instead of modeling selection into the sample, it models selection into treatment: in this case, having interreligious intimate contacts.

The model is expressed in two equations, where the negative out-group attitude is  $y$ , independent variables are the vector  $x$ , and a binary treatment membership variable is  $w$  in Equation 1, and independent variables are the vector  $z$  in Equation 2 (as in Guo and Fraser 2010: 97):

$$\text{Regression equation: } y_i = X_i\beta + w_i\delta + \varepsilon_i, \quad (\text{Eq. 1})$$

$$\text{Selection equation: } w_i^* = z_i\gamma + u_i, \quad w_i = 1 \text{ if } w_i^* > 0, \text{ and } w_i = 0 \text{ otherwise} \quad (\text{Eq. 2})$$

$$\text{Prob}(w_i = 1|z_i) = \Phi(z_i\gamma)$$

and

$$\text{Prob}(w_i = 0|z_i) = 1 - \Phi(z_i\gamma),$$

where  $\varepsilon_j$  and  $u_j$  are bivariate normal with mean zero and covariance matrix  $\begin{pmatrix} \sigma_\varepsilon & \rho \\ \rho & 1 \end{pmatrix}$ . Given a possible selectivity of people with interreligious friends, the evaluation task is to estimate the regression coefficients  $\beta$ , while controlling for selection bias induced by nonrandom choice of friends. The treatment effect model can be estimated in a two step procedure, which models the selection equation first and then uses the conditional probability of receiving a treatment to control for a selectivity bias in the regression equation.<sup>13</sup>

Following previous research, we include a number of factors that are assumed to affect interreligious friendships (Blanchard 2007; Blum 1985; Olson and Perl 2011). These include: (1) social demographic characteristics (gender, denomination, and educational level (here parental education)), (2) social embeddedness in (inter-) religious networks (i.e., participation in religious services (ranging from 1 (never) to 7 (several times a day), casual contacts with other religion members, and preference for (avoidance of) interreligious friends (ranging from 1 (totally accept) to 5 (totally avoid), and (3) contextual characteristics (i.e., relative group size and a dichotomous variable conflict region equaled 1 if a respondent lives in Ambon or Mindanao).

Specification of the treatment effect model is best if additional variables can be found which affect the selection process but do not have a partial effect on the outcome variable (Wooldridge 2006: 620). For this reason, we also included two variables in the selection equation—“Agree interview”—indicating whether or not a respondent agreed on a subsequent in-depth interview and—“Length of residence”—ranging between 1 (less than one year) to 4 (more than three years). We assume that these two variables significantly affect interreligious friendships, yet are unrelated to out-group attitudes, net of model covariates.

The treatment effect models were estimated by a full-maximum likelihood estimator using the *treatreg* and *itreatreg* commands in Stata (Brown and Mergoupis 2010; Cong and Drukker 2001). Previous empirical work in sociology using treatment effect model can be found in (DeMaris, Sanchez, and Krivickas 2012; Lorence and Dworkin 2006).

## RESULTS

To see how selectivity of respondents into interreligious friendships affects our results, we will first discuss the results from the ordinary least squared analyses (Table 2) and then examine the differences with the treatment effect model (Table 3 and 4). In all Tables, Model 1 includes all measures of interreligious contacts; Model 2 adds the perception of group threat; and Model 3 and 4 include interactions between intimate and casual, and negative interreligious contacts. We will compare the coefficients of Model 1 to those of Model 2, in order to assess whether the role of interreligious contact is (partly) explained by the perception of group threat.

#### TABLE 2 ABOUT HERE

Table 2, Model 1 confirms the importance of intimate interreligious contact for the attitudes towards the religious out-group. As hypothesized, intimate interreligious contacts are associated with less negative attitudes towards the religious out-group and lower preference for residential segregation. In line with the hypothesis, we also find that casual interreligious contacts are related to less negative attitudes towards the religious out-group and lower preference for residential segregation. However, the standardized coefficients for casual interreligious contacts are almost the same as the standardized coefficients for intimate contacts (negative attitudes:  $B = -.085$  vs.  $B = .069$ ; preference for residential segregation:  $B = -.140$  vs.  $B = -.120$ ), thus rejecting the second hypothesis that casual contacts decrease the negative attitudes towards the religious out-group, but less so than intimate contacts.

It was next hypothesized that negative interreligious contact experiences have detrimental effects on out-group attitudes. We find clear support for this hypothesis (Table 2, Model 1). Respondents who had experienced interreligious violence have significantly more negative attitudes towards the religious out-group and stronger preference for residential segregation than those who did not have such experience, even after taking into account a more positive interreligious contact experience.

Regarding control variables, Table 2, Model 1 shows that religious majority group members have less negative attitudes and less preference for residential segregation than minority group members. This finding suggests that, although religious majority group members have fewer opportunities for interreligious contacts than minority group members, when taking this into account, they are significantly less negative towards the religious out-group than minority group members. Muslims have significantly more negative attitudes towards the religious out-group and stronger preference for residential segregation than Christians. Interestingly, other things being equal, parental education and gender have no significant effect on intergroup attitudes.

We next hypothesized that the effect of interreligious contacts on attitudes towards the religious out-group is partly explained by perceived group threat. As a start, Table 2, Model 2 clearly shows that the perception of group threat has a strong positive effect on both negative attitudes towards the religious out-group and preference for residential segregation. As hypothesized, perceived group threat explains the effect of negative interreligious contacts on out-group attitudes. Specifically, the effects of

negative interreligious contacts on negative attitudes towards the religious out-group (Model 1:  $b=.213$ ) is much smaller when the perception of threat is included in the model (Model 2:  $b=.103$ ), the difference between the coefficients being statistically significant ( $Chi2(1)= 51.83, p=.000$ ). Likewise, the effect of negative contact experiences on preference for residential segregation (Model 1:  $b=.161$ ) is reduced in magnitude and turns insignificant when perception of threat is included in the model (Model 2:  $b=.036$ ).

Interestingly, the effects of intimate and casual interreligious contacts on negative out-group attitudes remain almost the same when the perception of threat is included in the model. Similarly, our conclusions regarding the control variables, i.e., gender, parental education do not change with inclusion of the perception of threat the model. The exceptions are the coefficients of being Muslim versus Christian and of a relative group size, which are significantly smaller in the models with the perception of group threat. These findings suggest that Muslims and religious minority group members have more negative attitudes towards the religious out-group because they feel more threatened than Christians and religious majority group members, respectively.

Our final hypothesis stated that intimate and casual interreligious contacts are less likely to reduce negative attitudes towards the religious out-group among those who experienced negative interreligious contact than among those without such experiences. Table 2, Models 3 and 4 provide clear support for this hypothesis. Specifically, among people who did not experience interreligious violence, intimate and casual contacts are associated with a significant decrease in negative attitudes towards the religious out-group (Model 3:  $b=-.158$ ; Model 4:  $b=-.049$ ) and preference for residential segregation (Model 3:  $b=-.235$ ; Model 4:  $b=-.080$ ). However, for those respondents who experienced interreligious violence, intimate and casual contacts are associated with almost no change in attitudes towards the religious out-group (Model 3:  $b=-.158+.138 =-.02$ ; Model 4:  $b=-.049+.048=-.001$ ). Likewise, the negative relationship between casual contacts and preference for residential segregation is significantly reduced for those who experienced interreligious violence (Model 4:  $b=-.080$  vs.  $b=-.02$ ). These results suggest that interreligious contacts, in particular casual contacts, if taking place in a hostile and competitive environment, have limited ability to improve intergroup attitudes.

#### TABLE 3 and 4 ABOUT HERE

The results of assessing the influence of selection into interreligious friendships are shown in Table 3 and 4. The first column, suggests a number of factors that discriminate between respondents with and without intimate interreligious contacts. Hence, those with casual interreligious contacts, those who are Muslims, who live in a conflict area and/or experienced interreligious violence, are more likely to have interreligious intimate contacts. Negative contacts and conflict region reflect more opportunities for interreligious friendships, as conflict regions have generally more balanced religious population. In

contrast, those who are in a majority position, feel threatened by the religious out-group and have a high preference for avoidance of interreligious friends are less likely to have interreligious friends.

Table 3 and 4 show selectivity-corrected estimates of interreligious contacts on out-group attitudes. Notably, the unobserved correlation between error terms from the selection and outcome equations,  $\rho$ , presented at the bottom of Table 3 and 4 is significant, providing evidence for a selection bias problem. Model 1 shows that the principal difference lies in the effects of intimate and casual interreligious contacts. Specifically, the ordinary least squares regression results, which do not address selectivity, showed a relatively weak negative relationship between intimate interreligious contacts and negative attitudes towards the religious out-group (Table 2, Model 1:  $b=-.139$ ), and preference for residential segregation (Table 2, Model 1:  $b=-.241$ ). These weak negative effects of intimate interreligious contacts are much larger when the model is estimated free of selectivity bias, however (Table 3, Model 1:  $b=-.933$ ; Table 4, Model 1:  $b=-1.224$ ). These findings suggest that, other things being equal, people who have intimate interreligious contacts have a mean out-group negative attitudes and preference for residential segregation about one unit smaller than respondents who did not have interreligious friends.

When controlling for selectivity, the relatively small negative effects of casual interreligious contacts on out-group negative attitudes and preference for residential segregation, that were evident in the ordinary least squares regression (Table 2, Model 1:  $b=-.033$  and  $b=-.060$ ), are positive and increased in magnitude (Table 3, Model 1:  $b=.110$ ; Table 4, Model 1:  $b=.117$ ). This finding implies that causal interreligious contacts increases rather than decrease the negative attitudes towards the religious out-group, when controlled for selectivity.

The coefficients comparison between Model 1 and Model 2 (Table 3 and 4), provides additional insights into the interreligious contacts effect. Also when controlling for selectivity, the effect of negative interreligious contacts on negative attitudes towards the religious out-group is much smaller (Table 3) or turns insignificant (Table 4) when the perception of threat is included in the model. Interestingly, the selectivity-corrected estimates show that perceived group threat explains about a half of the effect of intimate interreligious contacts on negative attitudes towards the religious out-group (Model 1:  $b=-.933$  vs. Model 2:  $b=-.433$ ) and preference for residential segregation (Model 1:  $b=-1.224$  vs. Model 2:  $b=-.490$ ). In addition, the coefficients comparison between Model 1 and Model 2, reveals that the positive effect of casual contacts on out-group attitudes is due to omitted perception of group threat. That is, because casual interreligious contacts are more likely in the conflict regions, where the Christian and Muslim populations are more balanced, respondents who have casual contacts perceive more group threat than those without casual contacts. However, when controlling for perception of group threat, casual contacts have no independent effect on attitudes towards the religious out-group. In sum, the results from the treatment effects model suggests that perceived group threat provides a valid mechanism explaining the effects of both negative and positive intergroup contact on intergroup attitudes.

Similarly to their ordinary least squares counterparts, we find a positive interaction between negative and casual interreligious contacts (Table 3 and 4, Model 4). The selectivity-corrected estimates of main effects of casual and negative interreligious contacts are not significant, however. Table 3, Model 3 provides also some evidence for a positive interaction between intimate and negative contacts, although the effect is marginally significant ( $p=.06$ ). Taken together, these results suggest that casual interreligious contacts are not only unable to improve the attitudes towards the religious out-group, but also in an adverse contact situation, can result in increased negative attitudes towards the out-group. Intimate interreligious contacts, however, reduce negative attitudes towards the out-group, even in the presence of negative contact experience.

## CONCLUSION

This study has contributed to our understanding of causes, processes and consequences of interreligious contacts by (1) focusing on particularly relevant but understudied context, that is, ethnic and religiously diverse regions of Indonesia and the Philippines, (2) demonstrating that the effects of interreligious contact vary between types of interreligious contact experience (i.e., intimate, casual and negative) as well as the historical context of interreligious contacts, (3) and examining one of the key causal assumptions underlying intimate contacts effect.

Our analyses yield consistent support for the contact hypothesis. The effects of *intimate* interreligious contacts on attitudes towards the religious out-group are both in the predicted direction and quite robust. Most previous research on contact hypothesis has relied on cross-sectional data where selection of people into contact could result in biased estimates of contact effects. Although it is expected that intergroup contacts reduce negative attitudes towards the out-group, the opposite causal sequence could be at work, prejudiced people are more likely to avoid, and tolerant people to seek intergroup contact (Pettigrew 2008). The results from the treatment effect model indicate that selection processes indeed play a role: the negative effects of intimate interreligious contacts on negative out-group attitudes are much *larger* than their ordinary least square counterparts. This is in line with findings from Pettigrew and Tropp (2006: Table 3) who showed that experimental studies, which randomly assign participants into intergroup contact, yield significantly larger effects of contact on out-group attitudes than quasi-experiments or surveys and field studies.

Although numerous studies have examined the consequences of intergroup contact, relatively little is known about the factors associated with such contacts. The exceptions are recent studies on determinants of intergroup contact among ethnic minority groups (Kalmijn 1998; Martinovic 2010; Savelkoul et al. 2011; Sigelman et al. 1996). This study contributes to this knowledge by showing factors, which are associated with intimate interreligious contacts. Interreligious friendships are more common among those who have casual contacts with other religion neighbors, classmates and dorm mates, who belong to a minority group and who live in regions with a sizable out-group population,

but less common among those who feel threatened by the religious out-group and who prefer to avoid such contacts. Consistent with previous findings, these results suggest that both contact opportunities and individual preferences determine interreligious friendships (Martinovic 2010; Sigelman et al. 1996). These results also reveal the importance of social context within which interreligious contact occurs, that both directly and indirectly, through determining contact opportunities, affects out-group attitudes.

The positive contact effect appears, however, to be rejected regarding casual interreligious contacts. Although the ordinary least square results show that casual interreligious contacts can improve attitudes towards the religious out-group, selectivity-corrected estimates, suggest no significant relationship between casual contacts and negative attitudes towards the out-group. Casual interreligious contacts are less likely than intimate contacts to be voluntary and of equal status, conditions which facilitate the positive effect of contact (Allport 1954). Religious minorities can be forced to have contacts with other religion group members but such contacts will be superficial and involuntary, and so fail to generalize beyond contact situations (Allport 1954; Sigelman and Welch 1993). In addition, the history of religiously-motivated intolerance and violence in both countries may severely limit the quality of casual contact. Religious out-group members (in particular those perceived as migrants) may be regarded as competitors for scarce resources or even as responsible for lack of these resources (i.e., land, jobs, natural resources), leading to casual contacts that is subversive in character.

The absence of casual contacts effect is consistent with other studies on the contact hypothesis. Powers and Ellison (1995) found in the U.S. that, while interracial friendships enabled many African Americans to encounter negative stereotypes of Whites, casual interracial contacts had little bearing on the attitudes towards the Whites out-group. Likewise, Hamberger and Hewstone (1997) in a study on four Western European countries, showed that only interethnic friendships reduced negative attitudes towards immigrants, while other types of interethnic contact (i.e., at work and neighborhood) had negligible impacts on anti-immigrant attitudes.

Although researchers have, in general, recognized that not all forms of intergroup contact improve intergroup attitudes, there has been limited evidence on the potentially destructive effects of intergroup contact (Pettigrew 2008). This study contributed to previous research by considering the impact of extremely negative interreligious contact on out-group attitudes, i.e., interreligious violence. In line with expectations, people who experienced interreligious violence have more negative attitudes towards the religious out-group and stronger preference for residential segregation than those without such experience. Moreover, this effect of negative interreligious contacts is largely explained by perceived group threat. Because the survey inquired about experiences of interreligious violence in the last ten years, they likely refer to historical negative contacts. Our findings suggest that historical memory of negative interreligious contacts is an important determinant of contemporary perceptions of group threat, which in turn increases negative attitudes towards the religious out-group.

Barlow and colleagues (2012) showed that, in a laboratory setting, negative interracial contact was far more important than positive interracial contact in affecting attitudes towards the racial out-group. In contrast, using survey data collected among youngsters in the Netherlands, Bekhuis, Ruiter, and Coenders (2011) showed that an association between negatively perceived interethnic contact and out-group attitudes was stronger in the neighborhood but weaker at school and the same in a classroom than an association between positively perceived interethnic contact and out-group attitudes.

Our results based on survey data among Indonesian and Filipino students provides both positive and negative messages on this issue. On the positive side, we find that the direct impact of negative interreligious contacts is relatively small, and that having contacts with interreligious friends is far more important for out-group attitudes than negative interreligious contact (Table 3, Model 2:  $b=.433$  vs.  $b=.127$ ; Table 4, Model 2:  $b=.490$  vs.  $.057$ , ns). On the negative side, our results show that negative interreligious contacts seem to affect out-group attitudes indirectly. That is, negative interreligious contacts are related to the perception of group threat, which in turn, increases negative attitudes towards the religious out-group. They also significantly deteriorate less intimate, casual contacts with other religion members, so they increase negative attitudes towards the religious out-group.

Notably, even after including two conflict regions in our sample, positive interreligious contact is far more frequent than negative contact experience. While one third of respondents in our sample experienced interreligious violence which, in most cases, happened in isolation and in the past, many more, reported frequent contacts with interreligious friends. Despite its rare occurrence, negative interreligious contacts remain an important factor affecting out-group attitudes, though mostly indirectly.

The fact that our study focuses on extremely negative contact experience does seem to suggest that less negative contact should have an even smaller negative impact on out-group attitudes. Unfortunately, the effect of less negative interreligious contacts cannot be addressed with the data available in this study. We can only assume that some of the casual encounters with other religion neighbors, classmates and dorm mates include some of the characteristics of negative contact. Future work should strive for more thorough measure of negative contacts, i.e., insult, harassment, verbal abuse, and compare their effects on out-group attitudes with other types of contacts. For instance, responding to a recent critique (Barlow et al. 2012), our sensitivity-corrected estimates suggest that perceived group threat is an important mechanisms for both positive and negative interreligious contacts. Positive contact decreases, while negative contact increases perception of group threat, which in turn increases negative attitudes towards the out-group. However, the causal order between intimate and casual contact and perception of group threat remains unclear, given our use of cross-sectional data.

There are valid reasons to believe that attitudinal changes generated by interreligious contacts are likely to extend across situations and face-to-face interactions (Paollini et al. 2004; Pettigrew and Tropp 2006; Powers and Ellison 1995; Siegelman and Welch 1993). First, questions about out-group

attitudes in the questionnaire refer to the religious group as a whole and not only to people involved in a contact situation. Second, the effects of interreligious contacts are consistent across two different attitudinal outcomes towards the religious out-group: negative attitudes and preference for residential segregation. There is ample evidence in the literature that these attitudinal outcomes are of primary importance for intergroup behavior such as residential segregation (Bobo and Zubrinsky 1996; Charles 2003, labor market discrimination (Evans and Kelley 1991; Quillian 2006), or intergroup conflict (Green, McFalls, and Smith 2001).

While the focus on socially and religiously diverse regions provides some variability in students' interreligious contacts and attitudinal outcomes, our results cannot be generalized to the adult general population. Students may differ from the general adult population as both their education level and social environment at universities are likely to make them more open towards interreligious contacts and have less negative attitudes towards the religious out-group (Coenders and Scheepers 1998; Savelkoul et al. 2011). Despite its limited generalizability, this study makes an important attempt to examine the effect of intergroup contact in a real-world setting and in the context where research on contact hypothesis is most needed.

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<sup>1</sup> The data were collected in the universities located in (Marawi) and around (Cotabato, Iligan) the ARMM.

<sup>2</sup> The exact numbers in 2010 were: Christians 60 percent and Muslims 40 percent in the city of Ambon, Maluku province; Christians 8 percent and Muslims 92 percent in Yogyakarta (Statistics Indonesia 2010); Christians (about) 8 percent and Muslims 90 percent in ARMM; and Christians 95 percent and Muslims 0.6 percent in metro-Manila (NSO 2010).

<sup>3</sup> For a detailed account of a situation in the conflict regions see the reports of the International Crisis Group (cf. ICG Asia Report 2000; 2002; 2011) on the city of Ambon and Hopmann and Zartman (2011) on Mindanao.

<sup>4</sup> Allport (1954: 281) argued that negative out-group attitudes “may be reduced by equal status contact between majority and minority groups in the pursuit of common goals. The effect is greatly enhanced if this contact is sanctioned by institutional supports . . . , and provided it is of a sort that leads to a perception of common interests and common humanity between members of the two groups.”

<sup>5</sup> Casual interreligious contacts are more prevalent than intimate interreligious contacts. For instance, while only 27 percent of the respondents reported to have no casual interreligious contacts, it is 43 percent of the respondents who reported having no interreligious friends.

<sup>6</sup> For instance, both countries have similar Human Development Index (HDI), which combines measures of life expectancy, school enrolment, literacy and income, with conflict regions being at the bottom of the HDI (NSCB 2009; Statistics Indonesia 2011).

<sup>7</sup> In Yogyakarta the three universities are the University of Gadjah Mada (UGM), Duta Wacana Christian University (UKDW) and Islamic State University Sunan Kalijaga (UIN); in Ambon city, the selected universities are the University of Pattimura (Unpatti), Maluku Christian University (Universitas Kristen Maluku, UKIM) and State Institute of Islamic Studies Ambon (IAIN Ambon). In metro-Manila, the three universities are University of the Philippines (UP), University of Santo Tomas (UST), and Polytechnic University of the Philippines (PUP); and in and around ARMM: Notre Dame University Cotabato (NDU), Mindanao State University Marawi (MSU-M), and MSU-Iligan Institute of Technology (IIT).

<sup>8</sup> In total, 59 additional respondents were added in metro-Manila sample, of which 29 came from the pilot survey and 30 were contacted via religious organizations and mosques.

<sup>9</sup> Majority of respondents (75 percent) have either no or frequent contacts with interreligious friends, suggesting that dichotomization of the variable should not be a problem. Nevertheless, we re-run the OLS regression analyses with intimate interreligious contacts measured in five ordered categories and treated as a continuous variable but the results remained the same.

<sup>10</sup> We performed additional analyses to see whether our results are sensitive to the measurement of negative interreligious contacts. First, we differentiated between respondents who experienced negative interreligious contact directly (themselves and/or via relatives/friends) with those who experienced such contacts indirectly (via neighbors). The results, upon request, showed that while both types of negative contacts increase negative attitudes towards the religious out-group, this is mainly direct negative contact that increases the preference for residential segregation. Second, we run the models with a number of negative contacts treated as a continuous variable and a dummy variable indicating whether a respondent experienced negative contact or not, but the conclusions remained the same.

<sup>11</sup> Casual contacts are, on average, significantly less good (3.97 vs. 4.17), close (3.60 vs. 4.14) and equal (3.89 vs. 4.08) than intimate contacts. All items are measured on a 5-point scale ranging from 1 (not good at all) to 5 (very good). We also re-run the models with causal interreligious contacts measured based on contacts with class room colleagues and neighbours thus excluding contacts with dorm mates, but the results remained similar.

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<sup>12</sup> The main conclusions would remain the same if the models are estimated separate per country. We, therefore, combined the two countries in one sample.

<sup>13</sup> Among the alternative cross-sectional methods to address this endogeneity problem are instrumental variables and propensity score matching (Winship and Morgan 1999). A weakness of instrumental variable approach is that it is difficult to find instrumental variable that influences the assignment to the treatment but does not affect the outcome variable. In addition, standard errors from the instrumental variable approach tend to be large, if there is a weak relationship between the instrument and the treatment variable (Winship and Morgan 1999: 683). A limitation of propensity score matching is that it assumes that selection into treatment is based on observed characteristics. If major variables that affect both selection into treatment and the outcome have been omitted from the analyses, the findings from propensity score matching may be biased (Winship and Morgan 1999: 677–678).

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Table 1. Descriptive statistics

	Range	Mean	S.D.
<i>Dependent variables</i>			
Negative attitudes	1-5	2.71	.81
Residential segregation	1-5	2.89	.85
<i>Independent variables</i>			
Intimate contacts	0/1	.57	
Negative contact	0/1	.31	
Casual contacts	1-6	2.94	1.71
Relative size	0/1	.62	
Perceived group threat	1-5	2.39	.79
Muslim	0/1	.38	
Male	0/1	.44	
Parental education	0-3	2.41	.67
N	2423		

Source: ERCIP 2011

Table 2. Estimates from the OLS Regression of Negative Attitudes and Residential Segregation

	Negative attitudes				Residential segregation			
	Model 1	Model 2	Model 3	Model 4	Model 1	Model 2	Model 3	Model 4
	b (t-statistics)	b (t-statistics)	b (t-statistics)	b (t-statistics)	b (t-statistics)	b (t-statistics)	b (t-statistics)	b (t-statistics)
Intimate contacts	-0.139** (-3.23)	-0.116** (-2.91)	-0.158*** (-3.52)	-0.110** (-2.75)	-0.241*** (-5.47)	-0.214*** (-5.37)	-0.235*** (-5.23)	-0.207*** (-5.19)
Negative contacts	0.213*** (5.96)	0.103** (3.08)	0.015 (0.28)	-0.048 (-0.69)	0.161*** (4.41)	0.036 (1.07)	-0.008 (-0.15)	-0.152* (-2.18)
Casual contacts	-0.033** (-2.64)	-0.032** (-2.76)	-0.031** (-2.73)	-0.049*** (-3.64)	-0.060*** (-4.69)	-0.059*** (-5.08)	-0.058*** (-5.06)	-0.080*** (-5.94)
Relative group size	-0.236*** (-6.71)	-0.146*** (-4.46)	-0.156*** (-4.69)	-0.162*** (-4.85)	-0.239*** (-6.65)	-0.137*** (-4.16)	-0.141*** (-4.26)	-0.156*** (-4.68)
Perceived group threat		0.399*** (20.27)	0.400*** (20.31)	0.399*** (20.26)		0.457*** (23.16)	0.457*** (23.17)	0.456*** (23.17)
Muslim	0.117*** (3.30)	-0.001 (-0.02)	0.005 (0.14)	0.007 (0.21)	0.343*** (9.43)	0.208*** (6.24)	0.211*** (6.29)	0.218*** (6.50)
Male	0.015 (0.46)	0.029 (0.97)	0.030 (1.00)	0.030 (0.99)	-0.050 (-1.49)	-0.034 (-1.11)	-0.033 (-1.10)	-0.033 (-1.09)
Parental education	-0.040 (-1.53)	-0.022 (-0.90)	-0.023 (-0.94)	-0.022 (-0.93)	-0.000 (-0.01)	0.020 (0.84)	0.020 (0.82)	0.020 (0.81)
<i>Interactions with negative contact</i>			0.138* (2.03)				0.069 (1.00)	
Intimate contacts				0.048* (2.47)				0.060** (3.07)
Casual contacts								
Constant	3.008*** (39.72)	2.011*** (23.51)	2.036*** (23.58)	2.065*** (23.42)	3.189*** (41.17)	2.049*** (23.93)	2.062*** (23.83)	2.116*** (23.99)
Number	2423	2423	2423	2423	2423	2423	2423	2423

t statistics in parentheses

\* p<0.05, \*\* p<0.01, \*\*\* p<0.001, two-tailed test

Table 3. Estimates from the Treatment Effect Model of Negative Attitudes

	Intimate contacts	Negative attitudes			
		Model 1	Model 2	Model 3	Model 4
	b (t-statistics)	b (t-statistics)	b (t-statistics)	b (t-statistics)	b (t-statistics)
Intimate contacts		-0.933*** (-11.21)	-0.433*** (-4.16)	-0.461*** (-4.39)	-0.411*** (-3.90)
Negative contacts	0.238** (3.14)	0.270*** (7.02)	0.127*** (3.67)	0.045 (0.80)	-0.013 (-0.18)
Casual contacts	0.621*** (24.44)	0.110*** (6.02)	0.025 (1.21)	0.024 (1.14)	0.007 (0.30)
Relative group size	-0.291*** (-3.84)	-0.305*** (-8.02)	-0.175*** (-5.10)	-0.182*** (-5.29)	-0.188*** (-5.41)
Perceived group threat	-0.239*** (-5.10)		0.395*** (19.76)	0.396*** (19.83)	0.395*** (19.81)
Muslim	0.234** (3.21)	0.125*** (3.31)	0.004 (0.12)	0.009 (0.26)	0.011 (0.32)
Male	-0.001 (-0.01)	0.014 (0.40)	0.029 (0.94)	0.029 (0.96)	0.029 (0.96)
Parental education	0.032 (0.61)	-0.019 (-0.66)	-0.014 (-0.55)	-0.015 (-0.60)	-0.014 (-0.59)
<i>Interactions with negative contact</i>					
Intimate contacts				0.128 (1.88)	
Casual contacts					0.044* (2.26)
Conflict region	0.240** (3.12)				
Participation in services	0.007 (0.34)				
Avoidance of interreligious friends	-0.395*** (-10.22)				
Constant	-0.545* (-2.29)	3.008*** (37.26)	2.023*** (23.37)	2.046*** (23.44)	2.072*** (23.27)
Rho		0.610***	0.280***	0.271**	0.266**
LR test of $\rho=0$ : $\chi^2$ (df=1)		51.14	9.29**	8.70**	8.26**
N	2423	2423	2423	2423	2423

t statistics in parentheses

\* p&lt;0.05, \*\* p&lt;0.01, \*\*\* p&lt;0.001, two-tailed test

The model controls also for two additional variables included in the selection equation: agree interview and length of residence.

Table 4. Estimates from the treatment effect Model of Residential Segregation

	Intimate contacts	Residential segregation			
		Model 1	Model 2	Model 3	Model 4
	b (t-statistics)	b (t-statistics)	b (t-statistics)	b (t-statistics)	b (t-statistics)
Intimate contacts		-1.224*** (-16.00)	-0.490*** (-3.65)	-0.500*** (-3.70)	-0.451** (-3.23)
Negative contacts	0.298*** (4.15)	0.231*** (5.74)	0.057 (1.61)	0.018 (0.32)	-0.124 (-1.75)
Casual contacts	0.585*** (23.85)	0.117*** (6.65)	-0.009 (-0.35)	-0.010 (-0.40)	-0.035 (-1.24)
Relative group size	-0.407*** (-5.60)	-0.325*** (-8.15)	-0.162*** (-4.61)	-0.165*** (-4.67)	-0.177*** (-4.99)
Perceived group threat	-0.240*** (-5.89)		0.453*** (22.67)	0.453*** (22.70)	0.453*** (22.75)
Muslim	0.221** (3.13)	0.353*** (8.86)	0.212*** (6.30)	0.214*** (6.35)	0.221*** (6.55)
Male	-0.002 (-0.03)	-0.051 (-1.40)	-0.034 (-1.12)	-0.034 (-1.11)	-0.033 (-1.10)
Parental education	0.010 (0.184)	0.026 (0.89)	0.028 (1.12)	0.027 (1.10)	0.026 (1.06)
<i>Interactions with negative contact</i>					
Intimate contacts				0.060 (0.88)	
Casual contacts					0.057** (2.91)
Conflict region	0.036 (0.50)				
Participation in services	0.013 (0.74)				
Interreligious friends avoidance	-0.388*** (-10.89)				
Constant	-0.213 (-0.96)	3.190*** (37.55)	2.060*** (23.82)	2.070*** (23.74)	2.122*** (23.91)
Rho		0.713***	0.244*	0.236*	0.216
LR test of $\rho=0: \chi^2 (df=1)$		71.57***	3.86 *	3.62	2.87
N	2423	2423	2423	2423	2423

t statistics in parentheses

\* p<0.05, \*\* p<0.01, \*\*\* p<0.001, two-tailed test

The model controls also for two additional variables included in the selection equation: agree interview and length of residence.

## APPENDIX

Perceived group threat is measured by 9 items ranging from 1 (totally disagree) to 5 (totally agree).

1. I am worried that job prospects for members of my group would decline due to the presence of other religious groups.
2. I am worried that study grant opportunities will decline due to the presence of other religious groups.
3. I am worried that security in my university will decline due to the presence of students of other religious groups.
4. I am worried that the security in my neighbourhood will decline due to the presence of other religious groups.
5. I am afraid of increasing violence in my neighbourhood due to the presence of other religious groups.
6. The chances of getting space in a boarding house will decline due to the presence of other religious groups.
7. The migration of people of different religious groups to my community is a threat to my own religious group.
8. The religious practices of people from other religious groups threaten our own way of life.
9. I am afraid that customs of my group will be lost due to the presence of other religious groups.