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The Determinants of Islamophobia – An Empirical Analysis of the Swiss Minaret Referendum

Olga Orlanski and Günther G. Schulze*

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Abstract: *We analyze the determinants of Islamophobia using the only nation-wide anti-Islam referendum ever, which was held in Switzerland in 2009 and led to the prohibition of minarets. We find economic, environmental, and cultural factors as well as the presence of Muslims to determine voting behavior. Approval rates for the bill rise with unemployment and decrease with education, income, and the attractiveness of the location. Approval is higher in rural areas, in municipalities with a higher share of men, and in the Italian and German speaking parts of Switzerland. It is higher in municipalities with a higher share of Muslims, which strongly supports the 'religious threat' hypothesis. We compare the voting behavior in the minaret referendum with the referendum "for democratic naturalizations", held in 2008, in order to disentangle determinants of Islamophobia from those of xenophobia. We show that our results are robust to the estimation with ecological inference.*

Keywords: Referendum, Minaret referendum, Islamophobia, Xenophobia, Ecological Fallacy

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1 Introduction

Mistrust or aversion against ethnic or religious groups has severe political and economic consequences. Ethnically divided societies provide fewer and less productive public goods (e.g. Alesina et al. 1999; Miguel and Gugerty 2005) and, as a consequence, grow at lower rates (Easterley and Levin 1997; Alesina et al. 2003). Montalvo and Reynal-Querol (2005) find that religious polarization negatively affects growth through a reduction in investment, an increase in government consumption and an increased likelihood of civil conflict. One central reason behind these results is the lack of trust and cooperation between different ethnicities and members of different religious beliefs that exacerbates collective action problems (Habyarimana et al. 2007). Zak and Knack (2001) show that societies with low trust levels grow more slowly. Much of the empirical research has centered on societies of developing countries, notably in Africa; some of the work has analyzed the US.

Yet, ethnic and religious cleavages have become much more virulent in Europe as well. Immigration and refugee flows from conflict areas as well as higher fertility rates have led to an increasing share of residents with foreign background, both as citizens and as foreigners. Many of the residents with immigration background are Muslims, while there are hardly any Muslims in Europe without immigration background. The share of Muslims amounted to 4.4 % in Germany (2015), to 7-9 % in France (2015), to 5 % in the Netherlands (2009), and to 5.1 % in Switzerland (2015).[1] Especially after the attacks of 9/11, concerns have grown about the increasing influence of Islam, in particular the radical Islam, on Western societies. This has led to strong resentments against Muslim immigrants in Europe as a recent PEW Research Center report suggests (Wike et al. 2016). The political fallout of these and related resentments has been a rise of right-wing populist parties that strongly oppose immigration and Islam and emphasize national values throughout Europe.[2]

[1] CIA world factbook, accessed June 8, 2017.

[2] Examples, including the vote shares in the most recent parliamentary elections are

While economic and political effects of religious and ethnic cleavages are well understood at the macro level, much less is known about the the determinants of individual aversion against religious minorities, Muslims in Europe in particular. There are two main reasons for this. First, opinion polls are notoriously incorrect as they suffer from untruthful answers to sensitive questions (e.g. Tourangeau and Yan 2007). Certainly, attitudes towards Muslims are a sensitive issue in Europe, and answers biased towards more favorable views are to be expected as the general ethical attitude and rhetoric of public opinion leaders is one of tolerance and inclusiveness. The minaret referendum and the preceding opinion poll, which was far off the mark, prove that point spectacularly. The analysis of actual voting behavior does not suffer from such a bias. Second, proposals on the political agenda targeting at religious minorities would either be unconstitutional as they violate fundamental non-discrimination principles, or they are intertwined with economic motives, which makes disentangling attitudes towards the minorities from economic interests very difficult, if not impossible. For instance, laws restricting immigration would significantly limit the influx of Muslim immigrants in many European countries; at the same time, they would reduce the workforce, especially for low-skilled labor, with obvious consequences for wages and unemployment.[3]

Freiheitliche Partei Österreichs in Austria (20.5 %, 2013), *Partij voor de Vrijheid* in The Netherlands (13.3 %, 2017), *Front National* in France (13.2 %, 2017), *Vlaams Belang* in Belgium (3.7 %, 2014), *Sverigedemokraterna* in Sweden (12.9 %, 2014), *Perussuomalaiset, Finns Party* (earlier the True Finns Party) in Finland (17.6 %, 2015), *Fidesz* in Hungary (44.5 %, 2014), *Prawo i Sprawiedliwosc* in Poland (37.6 %, 2015), and *Alternative für Deutschland* in Germany (12.6 %, 2017). In Switzerland, the right-wing populist party *Schweizerische Volkspartei* (SVP) had the largest vote share at 29.4 % in the 2015 elections.

[3]Likewise, the vote share of right-wing populist parties, which often have strong nationalist and anti-Islamic stances, is not informative for the degree of Islamophobia as the decision to vote for right-wing parties depends not only on the degree of xenophobia

The minaret referendum in Switzerland is a unique case, in which actual voting behavior in a free and secret ballot is observable, a religious minority is explicitly targeted as such and no additional economic issue is present. The bill exclusively prohibits the erection of minarets at mosques in Switzerland. It is the single nation-wide referendum ever in a democratic state that restricted the freedom of religious expression as its single issue and therefore provides a unique opportunity to investigate the determinants of aversion to Islam.

The minaret referendum was held on November 29, 2009. The ballot initiative proposed a constitutional ban on the construction of minarets; it was launched by the right-wing *Schweizerische Volkspartei*, the single largest party in Switzerland with a vote share of almost 27 % in the 2007 federal election, and the *Eidgenössische Demokratische Union (EDU)*, a fringe party that advocates Christian values. Proponents of the bill argued it would safeguard Switzerland against an insidious ascent of the alien Muslim community, which, if not countered appropriately, would ultimately lead to its dominance and the spread of Sharia law. The Swiss federal government (*Bundesrat*) warned that the initiative would conflict with the Swiss constitution, especially with the freedom of religious expression, and the two chambers of parliament recommended rejection with large majorities. The Protestant and Catholic Churches as well as all parties except for the SVP and the EDU were opposed to the bill.[4]

While opinion polls prior to the referendum as well as exit polls at the referendum day forecasted its rejection, the bill was adopted with a considerable majority of 57.5 %.[5] As

and Islamophobia, but also on other program elements, such as their announced economic policy, the voting system, and the attractiveness of established parties (Kitschelt 1995; Jackman and Volpert 1996).

[4]Allenbach and Sökefeld 2010; *Für religiösen Frieden - gegen Minarettverbot*, NEUE ZÜRCHER ZEITUNG [NZZ], Sept. 3, 2009; *Minarett-Initiative: Befürworter legen zu*, TAGESANZEIGER, Nov. 19, 2009.

[5]An influential opinion survey conducted in mid October predicted 53 % voting against

a consequence, Art 72 of the federal constitution (*Bundesverfassung*) was amended by a third paragraph, stating 'The construction of minarets is prohibited.' (BBl 2009 4381).

Our study investigates the determinants of voting behavior in the Swiss minaret referendum. It resonates with the literature on the role of income and education on extremist attitudes and voting for extremist parties. This literature is largely inconclusive. Jackman and Volpert (1996) find that electoral support for right-wing parties varies positively with unemployment, Golder (2003) argues that unemployment produces large vote shares for right extremist parties only if coupled with large immigration, and Arzheimer (2009) finds a complex interaction between unemployment, immigration and other factors. In contrast, Knigge (1998) and Lewis-Beck and Mitchell (1993) find no evidence of the impact of economic conditions on the share of votes for extremist parties.[6] Opinion surveys are a second source of information: Dustmann and Preston (2001) show for Britain that individuals with higher education have more favorable attitudes towards foreigners while unemployment status has no effect. Mayda (2006) demonstrates that high-skilled individuals view immigration more favorably. Fertig and Schmidt (2010) corroborate this finding for Germany; the only variable that drives the difference in attitudes towards foreigners and Jews is education. Dustmann and Preston (2007) show that British people are more strongly opposed to immigration from countries with an ethnically different population. Lastly, the literature on hate crimes largely fails to find a significant impact of economic conditions on the incidence of these crimes.[7] In short, the role of income and education

the initiative and 34 % voting in favor (Longchamp et al. 2009). The turnout was 53.9 % (`https://www.bfs.admin.ch/bfs/de/home.html`).

[6]Obviously, there are many other determinants for right-wing party support, cf. e.g. Rydgren (2007).

[7]Jefferson and Pryor (1999) find no correlation between the existence of hatred groups and the unemployment rate or the income gap between whites and blacks in the US. Likewise, hate crimes against ethnic groups or homosexuals were uncorrelated with unemployment in New York between 1987 and 1995 (Green et al. 1998). No correlation

on xenophobia, Islamophobia, and political extremism is still an open research question.

Our paper also contributes to the literature on the impact of the presence of foreigners on the attitudes towards foreigners or, in our context, the number of Muslims on the degree of Islamophobia. The 'racial threat' hypothesis developed in the Southern US posits that white voters become more intolerant towards blacks with an increasing presence of blacks (inter alia Key 1949; Giles and Hertz 1994). Empirical evidence has been mixed. Bowler et al. (2006) find supporting evidence for the 'racial threat' hypothesis in California, where a higher presence of Hispanics has led to more conservative voting by whites (see also Kitschelt 1995). Voss (1996) does not find such an effect for the Southern US. French and Austrian regions with higher numbers of immigrants experienced more support for extremist right parties; but this did not apply for Germany (Givens 2002). Dustmann and Preston (2001) argue that sorting will lead to more tolerant people living in neighborhoods with larger minority groups. After correcting for this bias, they show that a higher concentration of ethnic minorities leads to more hostile attitudes.

The 'contact hypothesis' maintains that xenophobe attitudes may be reduced if people have more contact with the respective minority (Allport 1954; Amir 1969).[8] Stein et al. (2000) show that in more diverse counties whites were opposing immigration more if contact with Hispanics was low, but not if it was high (see also Husband 2002 and Dixon and Rosenbaum 2004 for evidence supporting the 'contact hypothesis'). Glaser (1994) shows that contact with other ethnicities leads to more aversion in situations in which competition and inequality persists. Overall, the evidence is far from conclusive.

Our results show that approval rates for the minaret referendum in Switzerland in-

exists between unemployment and ethnic violence in reunified Germany, after controlling for former East Germany (Krueger and Pischke 1997). In contrast, Honaker (2008) finds unemployment among Protestants and Catholics to be a leading cause of the violence by the respective factions in Northern Ireland.

[8]Boisjoly et al. (2006) show that white college students who were randomly assigned to black roommates held more favorable views towards minorities.

crease with unemployment and are higher for districts with lower educational attainment and lower income. We find evidence for a strong gender gap – districts with higher shares of women show lower approval rates. There is a strong divide between the different language groups: The German-Swiss districts and especially the Italian-Swiss districts have significantly higher approval rates than the French-Swiss and in particular the Rhaeto-Romanic districts.

The prohibition to erect minarets affects the Muslim minority, which is at the same time almost exclusively foreign or of foreign descent. The minaret referendum thus targets a double minority. Switzerland has a Muslim population of around 400,000, which is approximately five percent of the entire population.[9] Thus, xenophobic and Islamophobic attitudes may overlap in the motivation to vote for the proposal. In order to shed light on potentially different determinants for Islamophobic and xenophobic motivations, we compare the approval rates in the minaret referendum with those of the naturalization referendum in 2008, which proposed to tighten naturalization procedures for all foreigners alike by making appeals against negative naturalization decisions impossible. The differencing the approval rates of both referenda allows to identify differences between drivers of Islamophobia and xenophobia, as Islamophobic motivations will be relatively more dominant compared to xenophobic motivations in the minaret referendum than in the naturalization referendum as the former targets exclusively Muslims while the latter affects all foreigners.

We proceed as follows: Section 2 describes the minaret referendum. In Section 3, we introduce the data, derive testable hypotheses and explain our empirical approach. The

[9]Media estimate, TAGESANZEIGER, November 3, 2009. There is no official current figure on Muslims in Switzerland. In the 2000 census the Federal Statistical Office (Bundesamt für Statistik, BFS) counted 310,807 Muslims in Switzerland (BFS 2003), a figure that has been increasing sharply from 56,625 in 1980. Less than 12 % of the Muslim population are Swiss citizens; most of the Muslim residents come from former Yugoslavia and Turkey, only 5.6 % are of Arab descent (EKM 2010).

estimation results of the minaret referendum analysis are presented in Section 4. Section 5 contains robustness checks; in particular, we address the potential problem of ecological fallacy. Section 6 compares the determinants of Islamophobia to those of xenophobia. Section 7 concludes.

2 The Minaret Referendum

The minaret controversy began in 2006 with the resistance against the erection of minarets on existing Muslim prayer spaces in three Swiss municipalities, Wangen (canton Solothurn), Langenthal (Bern) and Wil (St. Gallen), and with the planned construction of an Islamic Center in Bern. The planned minaret in Wangen was the first to stir opposition. After the Turkish cultural association requested permission to construct a minaret, the community attempted to counteract this by collecting signatures. The Communal Planning Commission rejected the application, but the applicants filed an appeal to the Building and Justice Department, which revoked the initial decision. The community of Wangen then brought the case before the Administrative Court of the Canton of Solothurn and later before to the Federal Supreme Court. The claim was refused twice. The minaret in Wangen was erected in January 2009; it is the fourth minaret in Switzerland.[10] The minaret controversy in the other two municipalities, Langenthal and Wil, developed similarly.

The minaret controversy rapidly reached the national politics and the media. The Swiss People's Party had communicated their aversion against minarets early on as there had already been some (unsuccessful) attempts to ban the construction of minarets at the cantonal level. On May 1, 2007, the Swiss People's Party and the Confederate Democratic Union of Switzerland (EDU) launched a popular initiative seeking a constitutional ban of minarets at the federal level. The initiative aimed at the modification of article 72 of the Swiss Federal Constitution, which regulates the relation between church and

[10]In 2009, there were around 200 mosques and prayer spaces in Switzerland. `http://www.euronews.net/2009/11/19/minaret-debate-angers-swiss-muslims/`.

state, by including the following sentence: "The construction of minarets is prohibited." According to Swiss law, an initiative committee must collect 100,000 signatures within 18 months to move the initiative to the next stage in the legislative process (Stüssi 2008; Langer 2010). On July 8, 2008, the initiative committee (the so called "Egerkingen Committee") submitted 113,540 valid signatures to the Federal Chancellery.[11] In a report to the Federal Assembly, the Federal government (*Bundesrat*) established the validity of the minaret initiative, stating that it did not violate peremptory norms of international law, but recommended the rejection of the proposal. The National Assembly accepted the conclusions of the government and also recommended rejecting the ballot (Langer 2010). The Swiss Business Federation as well as leaders of the Catholic and Protestant Churches also recommended to reject the initiative.[12]

In the view of the initiators of the referendum, minarets have a political dimension. They argued that it symbolizes the claim of Islam to religious-political power, while the exercise of religion plays only a minor part. The initiators feared that accepting minarets would ultimately lead to having to accept the muezzin's call to prayer and that the minaret, as an Islamic power-symbol, would express an undemocratic claim to sole representation. They also argued that a mosque does not necessarily have to have a minaret and that the ban would therefore not affect the religious freedom of Muslims.[13] By contrast, the ban's opponents emphasized that the initiative violates national and international provisions of non-discrimination and the free exercise of religion and would threaten the religious peace in Switzerland. The minaret ban would limit the Muslims in

[11] `http://www.admin.ch/opc/de/federal-gazette/2008/6851.pdf`; `http://www.news.admin.ch/message/index.html?lang=de&msg-id=20309`.

[12] `http://www.euro-islam.info/key-issues/switzerlands-minaret-ban/#identifier_1_11285`.

[13] The initiative committee: `http://www.minarette.ch/downloads/kurz-argumentarium_minarettverbot.pdf`.

the expression of their faith and would not be compatible with democratic values.[14]

The anti-minaret campaign was conducted aggressively. Initiators used a poster showing a burka-clad woman and minarets as rockets piercing the Swiss national flag. The poster was prohibited in some municipalities and criticized by the Swiss Commission Against Racism as well as by the UN Human Rights Committee.[15]

On November 29, 2009, the referendum was adopted by 57.5 % of the votes; the required cantonal majority was also obtained. Only four of the 26 Swiss cantons rejected the initiative (Geneva, Waadt, Basel-City, and Neuenburg).[16]

The minaret referendum was the subject of heavy criticism by the media, foreign politicians, and international institutions, the main issue being the incompatibility of the minaret ban with the fundamental value of religious freedom (Langer 2010).

Many scholars criticized the referendum as well. Stüssi (2008) argues that the minaret initiative is controversial in its nature as a result of a democratic process that violates international law and basic human rights. Langer (2010) states that the minaret ban is incompatible with international obligations of Switzerland, among them the European Convention on Human Rights and the International Covenant on Civil and Political Rights. Kirchgässner (2010a, b) sees an unresolved and, in part, irresolvable conflict between the democratic principle and the rule of law at the heart of the problem. Both are fundamental constitutional principles of Western open societies: While democratic decisions have to be respected as the will of the sovereign, they may conflict with basic human rights such as freedom of religion.

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[14]The press conference of the Swiss Federal Assembly is available at `http://www.tv.admin.ch/de/archiv?video_id=184`.

[15]`http://www.euro-islam.info/key-issues/switzerlands-minaret-ban/#identifier_1_11285`. The banner can be seen at `http://blog.zeit.de/joerglau/2009/10/09/minarette-verbieten_3114`.

[16]`https://www.bfs.admin.ch/bfs/de/home/statistiken/politik/abstimmungen.html`.

While much of the discussion centered on the legal, political, and moral fallout of the minaret referendum, little has been said about the determinants of the approval to the initiative.

3 Data and Empirical Approach

3.1 Main Hypotheses and Data

We base our hypotheses on evidence from the literature, which was derived in different contexts, such as voting for parties of the extreme right or opinion polls regarding immigration, and investigate whether they carry over to the case of anti-Muslim sentiments in the minarett referendum. We group the determinants into four main categories: economic characteristics of the ballot districts (unemployment, income, educational profile), the share of Muslims in a district ('religious threat' versus 'contact hypothesis'), demographic variables (age, gender) and cultural and political differences between the four language groups in Switzerland, and include additional controls.

There is significant empirical evidence that support for right-wing parties increases with unemployment (Arzheimer 2009; Golder 2003; Jackman and Volpert 1996). Even though others fail to find such relationship (Dustmann and Preston 2001; Lewis-Beck and Mitchell 1993), we test for a possible influence of these economic variables on the decision to vote in favor of the minaret ban. We hypothesize that a possible motive behind the approval of the minaret initiative is not only aversion against a "creeping Islamization" in Switzerland, but that minarets are also seen as symbols for immigration by Muslim foreigners, which is associated with economic disadvantages, especially with rising unemployment. This view is shared, for instance, by the regional party Lega dei Ticinesi in Ticino, which supported the minaret initiative.[17] People exposed to and threatened by higher unemployment rates, i.e. residents of districts with high unemployment as well as less educated individuals, are hypothesized to be more likely to subscribe to such a

[17]See FAZ.net of November 30, 2009, Four Minarets and one ban.

view.[18] Moreover, citizens with higher income are hypothesized to feel less threatened by immigrants, who may reduce the wage level of low-skilled labor. More generally, well-educated and well-off people may be more confident and, as a consequence, less threatened by foreign cultural and religious influences. Indeed, many studies in the European context suggest that individuals with high education have more favorable attitudes towards foreigners (Dustmann and Preston 2001; Fertig and Schmidt 2010; Hjerm 2001).[19] We summarize this in our first hypothesis.

Hypothesis 1.a. *The approval rate rises with unemployment and declines with income in a voting district.*

Hypothesis 1.b. *The approval rate declines with education.*

We measure unemployment as annual average in the voting district in percent; income is measured as annual average net income per capita in the district. The education profile is captured by two variables EDUCATION1 and EDUCATION2, which measure the share of the adult population aged 25-64 years with lower secondary education or below and with upper secondary education, respectively.[20] (The share of population with tertiary education is the omitted category.) All variables are described in Table A.1 in the Appendix.

[18]As Muslim immigrants are predominantly low-skilled, further immigration may increase scarcity rents of human capital, which may provide another reason for high-skilled residents not to support the minaret ban.

[19]Schoon et al. (2010) find that British people with higher cognitive abilities at the age of 11 tend to have socially more liberal attitudes at the age of 33. Rindermann et al. (2012) find for Brazil that more intelligent people tend to have less extremist and more centered political attitudes. Similar evidence is provided by Stankov (2009) for the US and for foreign students entering the US.

[20]The lower secondary education category contains also people with missing education information.

The 'racial threat' hypothesis posits that a majority may become less tolerant with increasing presence of the minority (Key 1949; Giles and Hertz 1994; Kitschelt 1995; Bowler et al. 2006). While the hypothesis was developed in the context of racial relations between blacks and whites in the Southern US and evidence has been mixed so far, the logic could be transferred to a possible religious antagonism between Christians and Muslims in the Swiss context. It would imply that districts with a higher Muslim population would exhibit higher approval rates for the bill. We measure the presence of Muslims with the share of Muslims in the municipality in 2000 (MUSLIM2000) or with the share of people in a municipality with Muslim country citizenship (MUSLIM2010).

This hypothesis can be refined as Christians are no monolithic group. The antagonism between Muslims and Christians may be more pronounced if the majority society is not divided itself. If Catholics and Protestants coexist both in large numbers in a district, a third religious group may stir less resentments than if there is only one dominant religious group. We capture this idea with two dummy variables, CATHOLICS and PROTESTANTS, which become one if the respective group has a share in the population above 70 %. Alternatively we use the dummy variable RELIGION MIX, which is one if neither Catholics nor Protestants have a share above 70 % in a district.[21]

The alternative 'contact hypothesis' maintains that aversion against a racial minority is reduced if members of the mainstream society have more contact with the respective minority (Stein et al. 2000; Husband 2002; Dixon and Rosenbaum 2004). This implies that approval rates would be lower in voting districts with large Muslim populations as contact with Muslims is more frequent. Using data from a representative survey in a large Swiss city, Stolz (2005) finds that personal contact with Muslims has no mitigating effect

[21]In one specification, we include the variable CREEDLESS, denoting the share of people without religious affiliation. The reason is that disagreement may occur not predominately between religious groups, but between religious and creedless people as Muslims are confronted with similar problems as Christians in a secular society as argued by Helbing (2008).

on Islamophobia. We formulate our second hypothesis as:

Hypothesis 2.a. *('religious threat hypothesis') The approval rate rises with the share of Muslims in a district.*

Hypothesis 2.b. *The approval rate declines if neither Catholics nor Protestants hold a dominating majority in the district.*

Evidence derived in other contexts shows that political attitudes of women are significantly different from men's. In particular, women tend to be less xenophobic and support extreme right parties less often than men (for instance Gidengil et al. 2005; Pratto et al. 1997; Sichone 2008).There are also marked gender differences in voting behavior in Europe (Giger 2009). Based on this evidence, we hypothesize the gender effect to have the same direction in an Islamophobic context and therefore include the share of women in a voting district (WOMEN) in our regressions.

Hypothesis 3.a. *The approval rate declines with a rising share of women in a district.*

People may feel more threatened by the foreign, the more vulnerable they feel. Individuals with children may feel more vulnerable and thus oppose Islamic influences more. In contrast, young adults may feel less threatened by Islamic influences. Studies have found that in general, older people tend to be more xenophobic than younger individuals (Gorodzeisky and Semyonov 2009; Quillian 1995). We hypothesize that this holds also in the context of Islamophobia:

Hypothesis 3.b. *The approval rate increases with a rising share of people below 20 years of age. It decreases with a rising share of people between 20 and 39 years.*

To investigate the effect of the *age* structure, we include the share of people aged 0-19, 20-39, and 40-59 years (AGE 0-19, AGE 20-39, AGE 40-59) with the share of people aged 60 or older being the omitted reference category.

Switzerland is divided in four different language groups, which are at the same time culturally and politically quite different: the German speaking group and the three Latin-

Swiss groups speaking French, Italian, and Rhaeto-Romanic (Büchi 2003).[22] There is evidence of significant differences in voting behavior between the different Swiss language groups. The German-Swiss language group has been consistently more conservative than the Latin-Swiss groups (Hermann and Leuthold 2003). Danaci (2009) argues that in the French-speaking part of Switzerland two countervailing effects influence the opinion on the naturalization of Muslims: While Romands are in general less restrictive on naturalization issues than Swiss-Germans, they are more restrictive on the display of religious symbols in public like wearing headscarves. The study argues that both effects can be explained by the Romands' cultural closeness to France, where the aversion for religious symbols is related to secularism of France. A priori, it is not clear which effect will dominate. For the Italian-speaking Swiss, we expect high approval rates for the minaret ban because of their restrictive voting behavior in referenda on foreign affairs. For example, since 1992, this part of Switzerland rejected all initiatives and bills relating to the EU with no-votes between 57 % and 64 %, regardless of whether it was about politics or the economy.[23] We thus formulate

Hypothesis 4. *The approval rate varies significantly between the four language groups. German-Swiss and Italian-Swiss municipalities show higher approval rates than French-Swiss municipalities.*

We use dummy variables that indicate whether a municipality belongs to a given language group (GERMAN, ITALIAN, RHAETO-ROMANIC) and use French-Swiss as reference group.

[22]This has been coined the *"Röstigraben"* phenomenon after the national Swiss-German potato dish ("Rösti"), which is not particularly popular beyond the Swiss-German region; it describes the dividing line in mentality between the two largest language groups in Switzerland – Swiss-German speaking area and French-speaking Romands.

[23]`http://www.zoonpoliticon.ch/blog/Kategorien/serien/va-personenfreizugigkeit-2009/page/3/`.

We include a number of additional control variables. The variables RURAL and PERIPHERY indicate whether a municipality belongs to a rural area or to the periphery of an urban agglomeration as peripheral and rural areas have been shown to have more conservative attitudes in referenda and less welcoming attitudes towards foreigners. We use the areal classification of BFS and compare three categories: agglomeration cores (reference category), agglomeration peripheries, and rural areas.[24]

We control for the sector composition of municipalities' economies by including the variable TERTIARY, i.e. the share of employees in the tertiary sector. Attractiveness of a location is captured by CRIME indicating the overall crime level (criminal acts per 1000 residents) and by the MIGRATION BALANCE, the net inflow of population into a municipality.

3.2 Data Sources

This study links referendum data to a wide range of economic and socio-demographic data at the municipality level. The municipalities are identical with the ballot districts. We use three data sources: the State Secretariat for Economic Affairs for unemployment data, the Swiss Federal Tax Administration (ESTV) for income data and the Swiss Federal Statistical Office (BFS) for all remaining data.

Most variables refer to 2008, the year before the minaret referendum, yet some vari-

[24]Rural areas are defined as regions that do not belong to an agglomeration. Agglomerations are urban areas with at least 20,000 inhabitants. The agglomerations consist of a central city (agglomeration core) and other municipalities in the vicinity of the core that have an urban character (agglomeration periphery). In our analysis, we includes also five isolated towns in the category agglomeration periphery (Lyss, Langenthal, Einsiedeln, Davos, and Martigny), as they are structurally similar to the towns in the agglomeration periphery and too few to form a separate category. The BFS definitions are taken from Schweizerische Studiengesellschaft für Raumordnung und Regionalpolitik (2006).

ables relate to other points in time close to this year.[25] We use 2000 census data for slowly changing municipality characteristics such as language dominance, religion, and assignment to urban or rural areas, for which current data do not exist. Only the census 2000 data on the share of Muslims may not be quite reliable as the size and regional structure of Muslim population may have changed over the period 2000 to 2008. Thus alternatively we approximate the population of Muslims by the share of people with citizenship of an Islamic country using more current 2010 data.[26]

To account for a changing municipality structure over time, all data referring to different time periods have been transformed to the municipality structure of the referendum year. Between the census year (2000) and the referendum year (2009), there were approx. 130 fusions of municipalities. We calculated weighted averages for merged municipalities using the number of inhabitants as weights for most of the variables, and other variables where appropriate (e.g. number of employees to construct sector shares). In total, approx. 6 % of the data were derived through these procedures. Our sample consists of 2,612 Swiss municipalities.[27] Data description and descriptive statistics are given in the Appendix, Table A.1.

3.3 Empirical Approach

We use the approach that has become standard for the analysis of referenda (McFadden 1973). An individual votes in favor of a bill if his or her utility is larger if the bill is adopted than if it is rejected. The utility of the voter in these two states depends in turn

[25]This applies for income (2006), share of SVP votes (2007), and crime and unemployment rates (both 2009).

[26]The 2010 census contains only information on the nationality. On this basis, we calculate the shares of people with citizenship of an Islamic country for each municipality. A country is defined as Islamic if the share of Muslims is at least 50 %.

[27]This corresponds to the number of municipalities in the referendum data (without external voting).

on a vector of observable characteristics X_i, such as age, gender, and education, and on unobservable traits. In our context, unobservable determinants could include the degree of self-confidence, individual experiences, especially with Muslim foreigners, whether the individual was brought up in a tolerant home etc. Since we cannot observe these factors, we relate the probability P_i that an individual i will vote "yes" in a referendum to the vector of observable socio-economic variables X_i only and assume that the utility derived from these unobservable factors is distributed in some way. We use a logit representation which assumes that the probability of voting "yes" can be described by a cumulative logistic probability function of these exogenous variables X_i:[28]

$$P_i = F(\alpha + \beta X_i) = \frac{1}{1 + e^{-(\alpha+\beta X_i)}} \tag{1}$$

Rearranging and taking natural logarithms yields

$$log\frac{P_i}{1 - P_i} = \alpha + \beta X_i \tag{2}$$

Due to the secrecy of the ballot, we do not have individual data but only grouped data for each ballot district. If we assume identical individuals with respect to X_i, we can approximate the probability P_i that a representative voter will vote "yes" by the fraction of voters that actually voted "yes", i.e. $\tilde{P}_i = \frac{y_i}{v_i}$ with y_i denoting the number of voters in ballot district i who actually voted "yes" and v_i denoting the number of voters participating in the referendum in this ballot district.[29] Thus, we replace P_i by $\tilde{P}_i$ to arrive at the regression equation

$$log\frac{\frac{y_i}{v_i}}{1 - \frac{y_i}{v_i}} = \tilde{\alpha} + \tilde{\beta} X_i + u_i \tag{3}$$

For independent observations (binomially distributed), it can be shown that the error term in (3) is asymptotically normally distributed with zero mean and variance (Amemiya

[28]This section follows Pindyck and Rubinfeld (1991, ch. 10).

[29]This approximation is sensible because y_i is binomially distributed with frequency $\frac{y_i}{v_i}$.

(1985, 275-277); Maddala (1983, 28-30)):

$$Var(u_i) = \frac{\frac{v_i}{y_i}}{v_i - y_i} = \frac{1}{v_i \tilde{P}_i (1 - \tilde{P}_i)} \tag{4}$$

To solve the heteroscedasticity problem, the econometric literature recommends using the weighted least squares method with standard errors as weights (i.e. equation (3) is divided by $\sqrt{Var(u_i)}$).[30] There are two alternatives for the calculation of weights. First, one can simply use the empirical probabilities $\tilde{P}_i = \frac{y_i}{v_i}$ to compute the weights. This simple version is quite often used in the literature. The second alternative is to use the fitted probabilities for the calculation of weights according to the so-called *minimum chi-square logit method*, its estimator has the same asymptotic properties as the maximum likelihood estimator (Green (2002, 688-689); Amemiya (1985, 275-280); Maddala (1983, 28-30)). Both weighting procedures provide similar results, we report only the first; the second is available in the Appendix.

We relate the average voting behavior, i.e. the approval rate, to the average socio-economic characteristics in the districts. McFadden and Reid (1975) show that for heterogeneous groups the use of averages may lead to an underestimation of individual elasticities. There is no way of avoiding this problem without the knowledge of the covariance matrix of X for each group. Because such data is not available, our results focus on the average behavior of the groups and constitute a lower limit for individual behavior.

4 Results

Our results are summarized in Table 1. The dependent variable is the approval rate (cf. Section 3.3). The analysis shows that economic factors play a significant role in explaining the extent of Islamophobia. The approval rate increases *ceteris paribus* with

[30] Another possibility is to use heteroscedasticity-consistent standard errors within a simple ordinary least squares (OLS) estimation. However, since OLS is not fully efficient, weighted least squares may achieve efficiency gains (Cameron and Trivedi 2005, 84).

higher *unemployment* rate; the estimated coefficient is highly significant and sizable. This may suggest that in areas with higher unemployment citizens tend to make foreigners or Muslims responsible for the lack of jobs.

—Table 1 about here —

The effect of *per capita income* on the approval rate is negative, sizeable, and highly significant – richer people are less likely to support the minaret ban. *Education* has a strongly negative effect on approval rates: Districts with higher shares of people with tertiary education exhibit significantly lower approval rates. There are no significant differences between the effect of lower or upper secondary education shares for the voting behavior (t-value = -1.59). Our results are in line with studies of Dustmann and Preston (2007) and Fertig and Schmidt (2010) and corroborate Hypotheses 1a and 1b.

In order to test the contact hypothesis against the religious threat hypothesis, we included the *shares of Muslims*, measured by the variables MUSLIMS2000 and MUSLIMS2010 (see above). Both variables have positive, statistically significant effects of similar magnitude; the effect of Muslim share is slightly higher when we use more current data. Our results strongly support the 'religious threat' hypothesis (Hypothesis 2a): the higher the proportion of Muslims in a region, the higher the share of people that seek to ban symbols of Islam.

The *religious profile* of municipalities has an effect on voting behavior beyond the share of Muslims. Approval rates are significantly higher if Catholics or Protestants have a dominating share in the population (specification (3) in Table 1). Although the effect is higher for Protestants than for Catholics, the difference is not significant (t-value = 0.62). Approval rates decline with the share of creedless people and are lower for municipalities with a mix of different denominations. Our findings support Hypothesis 2b; they suggest that more homogeneous societies are less tolerant to foreign religions than societies with mixed religious profiles, which already learned how to coexist with one another.

We find evidence for a strong *gender effect* in approval rates. Municipalities with larger shares of women show significantly lower support for the initiative. This effect is

robust in all models. This corroborates evidence found in other contexts (Gidengil et al. 2005; Pratto et al. 1997; Sichone 2008) and supports Hypothesis 3a.

Approval rates increases significantly with increasing population shares in the age groups 0-19 and 40-59, while the middle age group has a negative effect on the approval rate (compared to the reference category of people aged 60 and above). This supports the notion that individuals with children are more likely to oppose symbols of Islam as they might feel more threatened by these alien influences. Hypothesis 3b is corroborated.

We find highly significant and very strong differences in voting behavior between the *four language groups* in Switzerland. Swiss-Germans are much more likely to support the Minaret ban than the Romands (the reference group), but the Italian-speaking part of Switzerland is even more strongly opposed to the erection of minarets. Only the small group of Rhaeto-Romands seems to have a more liberal attitude than the Swiss-Romands. These results are in line with the more liberal, less conservative attitude of Swiss-Romands compared to Swiss-Germans (the so called 'Röstigraben' (Rösti ditch) phenomenon). The French-speaking part may have supported more strongly the separation of church and state following the French tradition, however, this did not translate into higher approval rates for the minaret referendum.

The restrictive voting behavior of the Italian speaking part of Switzerland can be explained by its cultural closeness to Italy, in which strong xenophobic attitudes prevail. Leading representatives of the Italian People of Freedom party (Il Popolo della Libertà, PdL), the party of the former Prime Minister Silvio Berlusconi, officially supported the anti-minaret initiative. Similarly, the (North) Italian xenophobic party Lega Nord received the referendum results with big enthusiasm.[31] Hypothesis 4 is corroborated – very obviously not only economic, but also cultural factors shape the attitude towards Islam in Switzerland (and possibly elsewhere).

[31] `http://www.welt.de/politik/deutschland/article5376855/Jubel-und-Entsetzen-ueber-Schweizer-Minarettverbot.html`.

We control for a number of other intervening factors. Our results show a clear *urban-rural* divide: Agglomeration areas support the initiative much less than the agglomeration periphery, which in turn has lower approval rates than rural areas in all but one specification. The effect of the *crime rate* is negative and highly significant, however, our analysis does not allow for a clear interpretation of this result. It may be the case that in regions with higher crime rates the population has more pressing concerns than that of opposing different religions. It may also be that more tolerant people self-select into areas with higher crime rates (for instance due to lower rents or because of an "alternative" atmosphere). We include the *balance of internal migration* (independent of nationality) in the regression as an indicator for the attractiveness of the particular municipality. The results show that approval rates diminish ceteris paribus with increasing migration balance, suggesting that in more attractive municipalities citizens are more tolerant as they have fewer reasons to blame Muslim foreigners. We also find that the minaret initiative received less support in regions with high proportions of employees in the tertiary sector.

Additionally, we control for the *party landscape* and for *voter turnout* by including the vote share of the populist party SVP in the last parliamentary election before the minaret referendum (2007) and the voter turnout in the minaret referendum. The results for these variables can only be illustrative because of the obvious endogeneity problem. As the SVP sponsored the referendum the determinants for voting for the referendum and for the party are likely to be correlated. We find that the approval rate increases significantly with the share of SVP votes in the municipality, as expected, but that the determinants for the voting behavior in the referendum remain significant and of the same sign when including the SVP vote share. Their point estimates are reduced in absolute value, as one would expect, and since the SVP is more deeply rooted in the German-speaking part of Switzerland the estimates for the language groups are altered accordingly, e.g. the effect of the Italian-speaking regions increases in size.[32] Only the share of Muslims is no longer

[32]We have analyzed the determinants of SVP support in the general elections in the Appendix, Table A.2.

significant, but this is because the vote share of the SVP is significantly larger in districts with a higher share of Muslim population, cf. Table A.2 in the Appendix. It becomes obvious that the voting behavior in the referendum is quite different from the support of the SVP in general. The turnout also has a positive significant effect on the approval rate, which demonstrates a mobilization effect, which favors the initiators of the referendum.

5 Ecological Inference and Other Robustness Checks

5.1 Ecological Fallacy Problem

Using aggregate data to infer individual voting behavior entails a potential problem of ecological fallacy (EF). The relationships at the aggregate level do not always reflect individual-level correlations; in an extreme case the correlations of these two levels could even have different signs (Robinson 1950).

In our analysis the EF problem could occur as our data refer to the population of the municipality and not to the voting population. For example, the share of women in a given municipality (X_i) is known, however, it is not clear how close it is to the corresponding proportion in the voting population (β_i^w). If these two magnitudes differed substantially because women voter turnout was significantly different from that of men, the use of women population share (instead of women vote share) to explain actual vote outcome would lead to wrong conclusions. The EF problem is formally illustrated in the following table (King (1997) and Gschwend (2006)):

	vote	no vote	
women	β_i^w	$1-\beta_i^w$	X_i
men	β_i^m	$1-\beta_i^m$	$1-X_i$
	T_i	$1-T_i$	

If individual data are available, each individual can be assigned to one of the internal cells in this table. In contrast, aggregated data only contain information about the table borders. In our example, we only know the proportions of women and men (X_i, $1-X_i$)

as well as the turnout (T_i) in each voting precinct, but not the turnout of women and men (β_i^w, β_i^m).

Generally, individual relations cannot be described with aggregated data alone. Yet, due to the secrecy of the ballot, individual data are unobtainable. Various methods have been developed to tackle the problem of ecological fallacy in the voting research and to quantify the unknown parameters. The earlier approaches are the method of bounds (Duncan and Davis 1953) and the ecological regression (Goodman 1953). The method of bounds merely determines the minimal and maximal values of the valid bandwidth for the unknown parameters. The ecological regression of Goodman estimates the quantities of interest in a regression model assuming that they are constant across ecological units. King's (1997) ecological inference (EI) approach combines the principle of the ecological regression with the method of bounds and thus uses available information more effectively (King et al. 2004; Gschwend 2006).

EI is widely used in empirical political science research on voting patterns despite some concerns regarding the robustness of the estimates (Cho and Gaines 2004; Gschwend 2006). In recent years, EI research has proliferated, but comparative studies show that the more recent approaches do not seem to have a clear advantage over earlier methods (see Freedman et al. 1998[1]; Leemann and Leimgruber 2009).[33] The approach by King (1997) which we adopt is the most widely used one both in academic research and in practice (Collingwood et al. 2016).

5.2 Using EI Estimation in the Minaret Referendum Analysis

Ecological fallacy does not affect all variables in our analysis equally – district characteristics can be divided into variables describing individual characteristics of voters, such as gender, education, and age and variables that describe the district environment such as crime rate, migration balance or share of foreigners and share of Muslims (as all foreign-

[33]For the methodological debate see for example Freedman et al. 1998[2]; King 1999; Cho and Gaines 2004.

ers and most Muslims have no voting rights). As described above, ecologic fallacy may occur only for variables in the first group as population characteristics may misrepresent voters characteristics. Consequently, ecological inference is only needed for variables of that group. Since the variables of the second group dominate in our data, the EF is not expected to be a major issue in our study.

For the variables of the first group (share of women, education, unemployment, age, and employment in tertiary sector) we estimate the unknown parameters using the EI method of King and include these estimates as additional variables into our main specification. We apply the weighted least squares method as described in Section 3.3. Note that ecological inference can be applied only for proportion variables, i.e. the share of people in a precinct with a particular characteristic (Collingwood et al. 2016). Therefore, we cannot estimate ecological inference for the income variable or for the dummy variables, such as language groups, peripheral and rural areas, and religious affiliation.

Table 2 reports the results estimated with and without ecological inference. In the EI model 1 only the share of women is estimated by EI. The second EI model presented in Table 2 includes all possible EI variables (share of women, education, unemployment, age, and employment in tertiary sector).

— Table 2 about here —

Results of the EI regressions are very similar to our previous regression in sign, size and significance even though point estimates differ. Only the dummy for the Rhaeto-Romanic language group and one age group dummy become insignificant. Most importantly, the religious threat hypothesis is corroborated. Overall ecological fallacy seems to be no problem in our context.

5.3 Further Robustness Checks

We carried out additional robustness checks. First, to analyze whether the changes in the municipality structure may have affected the results, we estimated the same specifications

as presented in Table 1 excluding the merged municipalities. Results are reported in the Appendix – they are very similar (cf. Table A.3).

Second, we examined whether the results are robust to using other estimation methods. We used two alternative approaches, the minimum chi-square logit method and the fractional logit regression, which may be preferable especially if vote shares are close to zero or one. Empirically this is not an issue for our data set, but we still report results from these alternative specifications in the Appendix (cf. Table A.4). The minimum chi-square logit method produces very similar results, the fractional logit regression confirms most of our results, especially our central result that a larger presence of Muslims is associated with higher approval rates for the referendum remains significant (at the 10 %-level). Yet, some economic factors are not longer significant (unemployment, income, and crime) and the Rhaeto-Romanic language group is no longer different from the French language group. Overall, our results are quite robust to the use of alternative estimation approaches.

6 Islamophobia versus Xenophobia

6.1 Conceptual Issues

The rhetoric supporting the minaret referendum was clearly anti-Islam and the referendum itself targeted exclusively a symbol of Islam. Therefore, the determinants of the voting behavior in the referendum should reflect the factors that shape Islamophobic attitudes. Yet, Muslims in Switzerland are almost exclusively foreign or of foreign decent. We thus cannot exclude the possibility that xenophobic attitudes superimpose Islamophobic attitudes as the group targeted by the referendum – Muslims – are a special group of foreigners.

There is no consensus in the literature as to whether xenophobia, describing the general hostility towards foreigners, is a concept different from Islamophobia, the hostility towards Muslims, or whether Islamophobia is but a materialization of xenophobia. Kühnel

and Leibold (2007) and Stolz (2006) argue that xenophobia puts on a different complexion each time depending on the composition of foreigners in a country, which would imply that xenophobic people of today are mainly Islamophobic. In contrast, Helbling (2008) argues that even if the same people have negative attitudes towards foreigners in general and, specifically, towards Muslims, this does not automatically imply that Islamophobia and xenophobia are the same concepts and that they are driven by the same factors. He considers the role of national identity, religiosity, and postmaterial values as possible factors of influence and finds, for example, that religious people who attend church regularly are more xenophobic but less Islamophobic than other people. Religiosity could thus be associated with greater hostility towards foreigners in general but a more understanding attitude towards other religions. Xenophobia would have different determinants than Islamophobia. All of the studies mentioned above use survey data, which entail the distinct possibility of answering biases as the example of the opinion polls preceding the minaret referendum have impressively shown (cf. Section 1, fn. 5).

We seek to shed light on this issue. While we cannot empirically disentangle xenophobic and Islamophobic determinants in the minaret referendum, we can analyze to what extent Islamophobic and xenophobic attitudes have different determinants by comparing voting behavior in the minaret referendum with voting behavior in a referendum that targets all foreigners alike. As Muslims constitute only a quarter of all foreigners in Switzerland, Islamophobic attitudes will carry a larger relative weight in the minaret referendum that targets exclusively an Islamic religious symbol compared to a referendum that affects all foreigners. If determinants differ significantly, it can be traced back to the different relative importance of these two motivations, provided the referenda are otherwise comparable.

6.2 Separating Islamophobia and Xenophobia

Xenophobic referenda have long history in Switzerland, starting with the "kosher butchering ban" in 1893 prohibiting slaughtering animals without prior anesthesia, a religious

practice of Jews and Muslims.[34] As a reference referendum to compare the minaret referendum we selected the referendum "for democratic naturalizations", held on June 1, 2008. The initiative proposed to make naturalizations a political rather than an administrative act: Municipalities could choose whether to decide on naturalizations in town hall meetings, by an immigration commission or through a popular vote; moreover, decisions could not have been appealed against, making them final and potentially arbitrary. The initiative was rejected with 36.2 % yeas. We select this referendum for three reasons: first, it affects all foreigners alike (and not a specific group of foreigners); second, it addresses a rather generally topic – naturalization procedures – and thus voting behavior is not depending strongly on the specific issue; instead naturalization is at heart of the immigration issue. Third, it took place close to the minaret referendum and thus time effects are largely absent.

We regress the difference in approval rates in the minaret referendum and the 2008 naturalization referendum on the same explanatory variables as used in column 5 in Table 1. Since most variables in our data set relate to the year 2008, we use the same data for the explanatory variables in this section as in the analysis of the minaret referendum. As a consequence, the results are not influenced by differences in economic and socio-demographic conditions.[35]

Results are reported in Table 3. A positive estimate implies that this variable has a more positive effect on the approval rate for the minaret referendum than for the naturalization referendum. If a variable has an estimated positive (negative) effect on the approval rate in the minaret referendum and the differential effect is significantly positive, the effect is stronger (weaker) in the minaret referendum in absolute terms. This implies that Islamophobia is driven more (less) strongly by this variable than xenophobia

[34]For an account of the history of xenophobic referenda in Switzerland cf the working paper version of this article.

[35]Analogously to Section 4, we apply the weighted least squares method using the same weights as in Table 1 for comparability reasons.

as the Islamophobic motivation is assumed to be relatively more important in the minaret referendum.

— Table 3 about here —

The rural-urban divide is much stronger for the naturalization referendum than for the minaret referendum implying that xenophobia is even more of a rural phenomenon than Islamophobia. The difference in voting patterns between the language groups is much more pronounced for xenophobia than for Islamophobia. While approval rates for the minaret referendum were much higher in the German and even more so in the Italian-speaking parts of Switzerland than in the French-speaking parts, this divergence was even stronger in the naturalization referendum. If the notion is correct that individuals supporting the two initiatives are motivated by xenophobic as well as by Islamophobic attitudes in both referenda, but that their relative importance differs between the referenda, this finding implies that Islamophobia is more pronounced in the French-speaking parts than in the German and Italian-speaking parts. This result is in line with Danaci (2009) who finds that the French-speaking community is more supportive of naturalization than the German speaking community, but that this finding is reversed if the naturalization of headscarf wearing Muslim women is at issue.

Economic factors work in different directions. Point estimates for unemployment are larger for the naturalization referendum than for the minaret referendum, which makes sense given that the minaret referendum has no labor market implications while the naturalization referendum may well have them. Yet, the difference is not significant at usual levels (t-statistic of -1.48). Higher income reduces approval in the minaret referendum, but surprisingly increases approval in the naturalization referendum. While the first effect is in line with previous research – better off people feel more secure and thus less threatened by foreign influences – the latter effect runs counter to conventional wisdom. One explanation may be that a substantial share of immigration in Switzerland is high-skilled.[36] The educational effects are relatively similar, yet the approval-reducing effect

[36]Among the population of the first-generation immigrants in Switzerland, the

of tertiary education (compared to lower levels of educational attainment) is more pronounced for Islamophobia than for xenophobia. A bigger tertiary sector reduces approval for the minaret referendum but not for the naturalization referendum – thus economic structure has no effect for xenophobia but it does for Islamophobia.

Districts with larger shares of women had significantly lower approval rates for both referenda; yet the effect was much stronger for the naturalization referendum. This implies that women are far less xenophobic but more Islamophobic than men making the net effect negative in both cases, but less so in the minaret referendum. The second result may be explained by the different role of women in Islamic societies, which are commonly perceived as inferior. Districts with more children display higher approval rates in both referenda; this effect is stronger for the naturalization referendum than the minaret referendum. Overall the age pattern is similar.

The presence of Muslims increases the approval rate for the minaret referendum as well as for the naturalization referendum. Surprisingly, the effect is significantly more pronounced for the naturalization referendum than for the minaret referendum. A larger presence of Muslims tends to make the Swiss people significantly more xenophobic; this xenophobia-enhancing effect of a larger Muslim community in a municipality consequently increases the approval for the minaret referendum. The composition of Christian denominations (Catholics and Protestants) has no effect on xenophobia, but a more balanced composition of the denominations reduces the extent of Islamophobia.

In sum, there are distinct differences between the determinants of Islamophobia and xenophobia. We have argued that Islamophobic and xenophobic sentiments are superimposed motivations in both referenda, yet with different relative strengths, and that

proportion of people with tertiary education amounted 2015 to 36 %, whereas in the population without a migrant background this proportion was only 32.2 %. Source: Swiss Labor Force Survey, BFS, `https://www.bfs.admin.ch/bfs/de/home/statistiken/bevoelkerung/migration-integration/integrationindikatoren/indikatoren/abgeschlossene-ausbildung.assetdetail.300778.html`.

thus the difference in approval rates allows to draw meaningful conclusions about the determinants of "pure" Islamophobia (which is not directly observable as it is mixed with xenophobic sentiments). Yet, the comparison of the two referenda is meaningful also if one subscribes to the view that the approval to the minaret referendum is driven by Islamophobia only. This comparison then demonstrates that Islamophobia is not just a materialization of xenophobia as the drivers for both sentiments are distinctively different. Islamophobia and xenophobia are shown to be distinct concepts.

7 Conclusions

This study analyzes determinants of disapproval for Muslim symbols in Switzerland. It exploits a unique data set, as the minaret referendum is the only outright anti-Islam referendum ever held nationwide in a democratic state. While other referenda may also capture anti-Islamic sentiments, they are always intertwined with additional – often economic – concerns and have distributional consequences (as in the case of immigration policy). This disallows to identify the determinants of Islamophobia. Survey evidence potentially suffers from severe answering biases. The minaret referendum proves this point quite clearly as opinion polls prior to the referendum were impressively off the mark.

The minaret referendum therefore provides a unique opportunity to analyze the determinants of Islamophobia. Our investigation shows that education, income, and employment status exert significant influences on the disapproval of Muslim symbols. It also exhibits large differences between the language groups in Switzerland, indicating that not only socio-economic status but also culture strongly matters. The cultural differences within Switzerland make the Swiss case especially attractive – our finding suggests that Islamophobia may not be uniform across democratic Western states. Moreover, we show that approval for the minaret referendum increases with the number of Muslims in a community, which corroborates the 'religious threat' hypothesis. We also show that Islamophobia has different drivers than general xenophobia or the support for the right-wing populist party that initiated the referendum in the election.

Islamophobia and xenophobia remain highly relevant in Switzerland. The minaret referendum was followed by further xenophobic popular initiatives: "For the expulsion of foreign criminals" ("Für die Ausschaffung krimineller Ausländer", 2010), "Against mass immigration" (2014), and "For enforcement of the expulsion of foreign criminals" (2016). At the cantonal level, the canton Ticino has forbidden the full body veil in the referendum held on September 22, 2013.[37]

Yet, Islamophobia is highly virulent throughout Europe, if not throughout the Western world. The voting results for populist nationalistic parties in Europe in the recent elections as well as large case evidence prove that Islamophobia is not a phenomenon limited to Switzerland. In France, 2011 the use of burka was prohibited. Austria followed in 2017. Recent terror attacks in Paris, London, Berlin, Brussels and elsewhere and the large influx of migrants from Muslim states may have fueled existing resentments. Due to the specific features of its political system, Switzerland provides a unique opportunity to study the determinants of Islamophobia, but Islamophobia is by no means a unique feature of the Swiss population. The experiences of the minaret referendum may thus be informative for other European countries as well.

[37] http://www.spiegel.de/politik/ausland/schweiz-tessin-stimmt-fuer-burka-verbot-a-923774.html.

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Tables

Table 1: Regression results (WLS), dependent variable: APPROVAL

Variable	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(5a)**
Constant	0.873	1.081	0.458	0.776	**0.603**	**0.588**
	(3.63)	(6.57)	(2.97)	(4.82)	**(3.60)**	**(3.40)**
PERIPHERY	0.138***	0.140***	0.122***	0.112***	**0.063*** **	**0.059*** **
	(7.52)	(9.24)	(8.46)	(7.54)	**4.18)**	**(3.84)**
RURAL	0.432***	0.152***	0.117***	0.131***	**0.074*** **	**0.073*** **
	(16.11)	(7.84)	(6.39)	(6.97)	**(3.87)**	**(3.76)**
GERMAN	0.160***	0.371***	0.253***	0.373***	**0.408*** **	**0.408*** **
	(12.09)	(23.28)	(13.56)	(19.98)	**(20.50)**	**(20.74)**
ITALIAN	0.534***	0.630***	0.749***	0.652***	**0.680*** **	**0.682*** **
	(13.07)	(24.01)	(29.64)	(26.05)	**(25.66)**	**(25.38)**
RHAETO-ROMANIC	-0.318**	-0.303***	-0.394***	-0.296***	**-0.217*** **	**-0.217*** **
	(-2.38)	(-3.77)	(-5.28)	(-3.84)	**(-2.84)**	**(-2.82)**
WOMEN		-0.049***	-0.041***	-0.037***	**-0.045*** **	**-0.046*** **
		(-23.36)	(-23.63)	(-20.69)	**(-21.67)**	**(-22.00)**
EDUCATION 1		0.027***	0.026***	0.025***	**0.027*** **	**0.027*** **
		(26.17)	(25.49)	(24.82)	**(25.93)**	**(26.39)**
EDUCATION 2		0.031***	0.025***	0.028***	**0.029*** **	**0.029*** **
		(24.44)	(20.40)	(23.72)	**(23.02)**	**(22.61)**
UNEMPLOYMENT		0.027***	0.012**	0.014***	**0.016*** **	**0.016*** **
		(5.38)	(2.16)	(2.57)	**(2.97)**	**(3.01)**
INCOME		-0.032***	-0.035***	-0.017**	**-0.022*** **	**-0.020*** **
		(-4.27)	(-4.71)	(-2.31)	**(-2.94)**	**(-2.61)**
CRIME		-0.003***	-0.002***	-0.002***	**-0.001*** **	**-0.001*** **
		(-14.53)	(-14.29)	(-8.50)	**(-3.89)**	**(-4.14)**
RELIGION MIX				-0.026*	**-0.032** **	**-0.032** **
				(-1.95)	**(-2.45)**	**(-2.43)**
CREEDLESS		-0.004***				
		(-3.52)				
PROTESTANTS			0.048**			

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Variable	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(5a)**
			(2.50)			
CATHOLICS			0.034**			
			(2.12)			
MUSLIMS 2000			0.002	0.005**	**0.006****	
			(0.52)	(1.99)	**(2.38)**	
MUSLIMS 2010						**0.010****
						(2.52)
MIGRATION BALANCE				-0.048***	**-0.037*****	**-0.035*****
				(-12.13)	**(-8.96)**	**(-8.27)**
TERTIARY SECTOR				-0.003***	**-0.002*****	**-0.002*****
				(-8.80)	**(-6.05)**	**(-5.89)**
AGE 0-19					**0.014*****	**0.015*****
					(7.23)	**(7.41)**
AGE 20-39					**-0.013*****	**-0.013*****
					(-7.14)	**(-7.10)**
AGE 40-59					**0.009*****	**0.009*****
					(3.60)	**(3.51)**
FOREIGNERS			-0.003***			
			(-2.82)			
SVP			0.010***			
			(18.86)			
TURNOUT		0.004***				
		(4.80)				
Observations	2,612	2,603	2,592	2,603	**2,557**	**2,476**
R^2	0.21	0.73	0.76	0.75	**0.76**	**0.76**
Adjusted R^2	0.21	0.73	0.76	0.75	**0.76**	**0.76**
F-statistic	136.89	531.85	519.62	511.00	**449.10**	**430.41**

Notes: t-values in parentheses. *** indicates 1 % significance level, ** indicates 5 % significance level,* indicates 10 % significance level. For data description s. Table A.1.

Table 2: Regression results (WLS) with and without Ecological Inference

Variable	**B**asic model	**E**I model 1	**E**I model 2
Constant	0.603 (3.60)	0.818 (4.78)	0.868 (4.76)
PERIPHERY	0.063*** (4.18)	0.105*** (6.78)	0.099*** (6.04)
RURAL	0.074*** (3.87)	0.110*** (5.63)	0.130*** (6.34)
GERMAN	0.408*** (20.50)	0.437*** (21.42)	0.464*** (23.15)
ITALIAN	0.680*** (25.66)	0.712*** (25.95)	0.718*** (24.97)
RHAETO-ROMANIC	-0.217*** (-2.84)	-0.061 (-0.78)	-0.021 (-0.25)
RELIGION MIX	-0.032** (-2.45)	-0.035*** (-2.64)	-0.049*** (-3.57)
EDUCATION 1	0.027*** (25.93)	0.026*** (23.82)	**0**.018*** (19.37)
EDUCATION 2	0.029*** (23.02)	0.025*** (20.22)	**0**.013*** (13.77)
WOMEN	-0.045*** (-21.67)	**-**0.031*** (-17.74)	**-**0.024*** (-14.28)
UNEMPLOYMENT	0.016*** (2.97)	0.015*** (2.72)	**0**.024*** (3.23)
INCOME	-0.022*** (-2.94)	-0.045*** (-5.91)	-0.062*** (-8.09)
CRIME	-0.001*** (-3.89)	-0.001*** (-5.52)	-0.002*** (-9.18)
MIGR. BALANCE	-0.037*** (-8.96)	-0.032*** (-7.40)	-0.060*** (-14.44)
TERTIARY	-0.002*** (-6.05)	-0.003*** (-8.33)	**-**0.003*** (-8.95)
MUSLIMS 2000	0.006** (2.38)	0.010*** (3.63)	0.010*** (3.52)
AGE 0-19	0.014*** (7.23)	0.010*** (5.18)	**0**.008*** (5.37)
AGE 20-39	-0.013*** (-7.14)	-0.013*** (-6.85)	**0**.0003 (0.15)
AGE 40-59	0.009*** (3.60)	0.002 (0.82)	**0**.012*** (6.98)
Observations	2,557	2,557	2,499
R^2	0.76	0.75	0.73
Adj. R^2	0.76	0.75	0.72
F-Statistic	449.10	418.75	366.23

Notes: Dependent variable: APPROVAL, t-values in parentheses. The estimates obtained using the variables estimated by the EI method are shown in bold.

Table 3: Regression results (WLS) for the referenda 2009, 2008 and the difference in approval rates.

Variable	**(1)**	**(2)**	**(3)**
Constant	0.603 (3.60)	-0.076 (-0.37)	0.681 (4.21)
PERIPHERY	0.063*** (4.18)	0.053*** (2.85)	0.011 (0.72)
RURAL	0.074*** (3.87)	0.128*** (5.47)	-0.054*** (-2.94)
GERMAN	0.408*** (20.50)	1.026*** (42.08)	-0.618*** (-32.18)
ITALIAN	0.680*** (25.66)	1.143*** (35.21)	-0.463*** (-18.12)
RHAETO-ROMANIC	-0.217*** (-2.84)	0.334*** (3.57)	-0.549*** (-7.47)
RELIGION MIX	-0.032** (-2.45)	-0.005 (-0.30)	-0.027** (-2.16)
EDUCATION 1	0.027*** (25.93)	0.018*** (14.01)	0.009*** (9.08)
EDUCATION 2	0.029*** (23.02)	0.013*** (8.81)	0.015*** (12.68)
WOMEN	-0.045*** (-21.67)	-0.075*** (-29.26)	0.030*** (14.70)
UNEMPLOYMENT	0.016*** (2.97)	0.024*** (3.59)	-0.008 (-1.48)
INCOME	-0.022*** (-2.94)	0.060*** (6.44)	-0.083*** (-11.23)
CRIME	-0.0008*** (-3.89)	-0.0014*** (-5.71)	0.0006*** (3.22)
MIGRATION BALANCE	-0.037*** (-8.96)	-0.021*** (-4.12)	-0.016*** (-4.05)
TERTIARY	-0.002*** (-6.05)	-0.001 (-1.33)	-0.002*** (-4.58)
MUSLIMS 2000	0.006** (2.38)	0.016*** (4.73)	-0.009*** (-3.54)
AGE 0-19	0.014*** (7.23)	0.026*** (11.08)	-0.012*** (-6.57)
AGE 20-39	-0.013*** (-7.14)	-0.0002 (-0.08)	-0.013*** (-7.31)
AGE 40-59	0.009*** (3.60)	0.014*** (4.65)	-0.005** (-2.18)
Observations	2,557	2,555	2,555
R^2	0.76	0.88	0.88
Adj. R^2	0.76	0.88	0.88
F-Statistic	449.10	1015.90	994.13

Notes: (1) Results for the referendum 2009; dependent variable: APPROVAL. (2) Results for the referendum 2008; dependent variable: APPROVAL 2008. (3) Dependent variable: difference APPROVAL - APPROVAL 2008; t-values in parentheses.

Appendix

Descriptive Statistics

Table A.1: Descriptive statistics for the estimation sample

Variable name	Variable description	unit	observations	Mean	Std. dev.	min	max
APPROVAL	Approval rate in minaret referendum for each municipality	logit	2,612	0.556	0.495	-1.099	3.178
APPROVAL 2008	Approval rate in democratic naturalization referendum for each municipality	logit	2,610	-0.510	0.676	-3.714	2.037
UNEMPLOYMENT	Unemployment rate, annual average	percent	2,610	2.659	1.609	0	29.300
INCOME	Annual net per capita income	10,000 SFr	2,611	3.000	0.745	0.839	10.725
WOMEN	Share of women in the municipality	percent	2,612	50.107	1.897	24.366	62.500
WOMEN EI	Share of women on the voting population estimated by EI-procedure	percent	2,612	56.290	3.068	26.287	72.057
FOREIGNERS	Share of foreign persons	percent	2,612	12.863	9.157	0	61.598
PRIMARY SECTOR	Share of employees in primary sector	percent	2,612	23.353	22.527	0	100
SECONDARY SECTOR	Share of employees in secondary sector	percent	2,612	27.483	18.116	0	100
TERTIARY SECTOR	Share of employees in tertiary sector	percent	2,612	49.171	21.634	0	100
AGGLOMERATION CORE	1: municipality belongs to agglomeration cores; 0: else	dummy variable	2,612	0.024	0.153	0	1
PERIPHERY	1: municipality belongs to agglomeration peripheries; 0: else	dummy variable	2,612	0.329	0.470	0	1
RURAL	1: municipality belongs to rural areas; 0: else	dummy variable	2,612	0.647	0.478	0	1
GERMAN	1: municipality belongs to Swiss-German	dummy	2,612	0.605	0.489	0	1

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Variable name	Variable description	unit	observations	Mean	Std. dev.	min	max
	speaking part of Switzerland; 0: else	variable					
FRENCH	1: municipality belongs to French speaking part of Switzerland; 0: else	dummy variable	2,612	0.299	0.458	0	1
ITALIAN	1: municipality belongs to Italian speaking part of Switzerland; 0: else	dummy variable	2,612	0.074	0.261	0	1
RHAETO-ROMANIC	1: municipality belongs to Rhaeto-Romanic speaking part of Switzerland; 0: else	dummy variable	2,612	0.022	0.146	0	1
PROTESTANTS	1: share of Protestants in the municipality exceeds 70 %; 0: else	dummy variable	2,612	0.192	0.394	0	1
CATHOLICS	1: share of Catholics in the municipality exceeds 70 %; 0: else	dummy variable	2,612	0.260	0.439	0	1
RELIGION MIX	1: neither Protestants nor Catholics strongly dominate in the municipality; 0: else	dummy variable	2,612	0.547	0.498	0	1
CREEDLESS	Share of people without religious affiliation	percent	2,612	8.830	5.411	0	37.240
MUSLIMS 2000	Share of Muslims in the population in 2000	percent	2,612	2.224	2.662	0	16.766
MUSLIMS 2010	Share of people with Islamic country citizenship in 2010	percent	2,485	1.083	1.593	0	14.77
EDUCATION 1	Share of people aged 25-64 with lower secondary educational level as highest level or missing education information	percent	2,612	27.714	9.314	0	98.936
EDUCATION 2	Share of people aged 25-64 with upper secondary educational level	percent	2,612	53.638	6.885	0.572	77.778
EDUCATION 3	Share of people aged 25-64 with tertiary educational level	percent	2,612	18.651	7.646	0	60.000
CRIME	Number of criminal acts according to the Criminal Code per 1,000 residents	number per 1,000 residents	2,606	35.662	32.030	0	701
SVP	Share of SVP votes (Swiss People's Party) in the last Parliament voting (2007)	percent	2,601	31.945	15.001	0	91.300

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Variable name	Variable description	unit	observations	Mean	Std. dev.	min	max
TURNOUT	Share of voted people on the total population with voting rights	percent	2,612	54.651	7.536	26.667	82.759
MIGRATION BALANCE	Difference between inflows and outflows in the population	1,000 residents	2,612	0.037	0.183	-0.146	6.928
AGE 0-19	Share of population aged 0-19	percent	2,564	22.237	3.925	0	43.900
AGE 20-39	Share of population aged 20-39	percent	2,564	23.754	3.569	0	41.860
AGE 40-59	Share of population aged 40-59	percent	2,564	31.109	3.112	18.180	50.180
AGE 60+	Share of population aged 60 and over	percent	2,564	22.900	5.175	5.84	75.00

Determinants of SVP vote share in the 2007 federal elections

Table A.2: Regression results (WLS), dependent variable: SVP vote share

Variable	**Coefficient**	**t-value**
Constant	40.499	6.30
PERIPHERY	1.337**	2.28
RURAL	2.558***	3.46
GERMAN	8.622***	11.27
ITALIAN	-10.145***	-9.96
RHAETO-ROMANIC	6.535**	2.23
RELIGION MIX	2.285***	4.56
EDUCATION 1	0.059	1.46
EDUCATION 2	0.462***	9.59
WOMEN	-0.673***	-8.35
UNEMPLOYMENT	0.984***	4.73
INCOME	0.803***	2.71
CRIME	-0.011	-1.53
MIGRATION BALANCE	0.183	1.14
TERTIARY	-0.016	-1.17
MUSLIMS 2000	0.610***	5.83
AGE 0-19	0.356***	4.73
AGE 20-39	0.037	0.52
AGE 40-59	0.393***	4.07
Observations	2,546	
R^2	0.82	
Adj. R^2	0.82	
F-Statistic	643.26	

Notes: *** indicates 1 % significance level, ** indicates 5 % significance level, * indicates 10 % significance level.

Estimation without merged municipalities

Table A.3: Regression results (WLS) for the estimation sample without merged municipalities, dependent variable: APPROVAL

Variable	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(5a)**
Constant	1.034	1.250	0.654	0.973	**0**.733	**0**.729
	(4.12)	(7.42)	(4.14)	(5.89)	(4.34)	(4.13)
PERIPHERY	0.124***	0.159***	0.140***	0.126***	**0**.081***	**0**.076***
	(6.45)	(10.12)	(9.36)	(8.17)	(5.15)	(4.75)
RURAL	0.418***	0.161***	0.123***	0.135***	**0**.083***	**0**.082***
	(14.71)	(8.00)	(6.47)	(6.93)	(4.23)	(4.06)
GERMAN	0.164***	0.364***	0.247***	0.365***	**0**.393***	**0**.398***
	11.64)	(21.92)	(12.82)	(18.90)	(19.21)	(19.62)
ITALIAN	0.506***	0.550***	0.673***	0.571***	**0**.598***	**0**.601***
	(10.24)	(18.20)	(23.01)	(19.61)	(19.62)	(19.41)
RHAETO-ROMANIC	-0.340**	-0.346***	-0.423***	-0.337***	**-**0.259***	**-**0.258***
	(-2.41)	(-4.13)	(-5.47)	(-4.20)	(-3.27)	(-3.22)
WOMEN		-0.050***	-0.041***	-0.038***	**-**0.046***	**-**0.047***
		(-23.06)	(-23.56)	(-20.98)	(-21.61)	(-22.03)
EDUCATION 1		0.028***	0.027***	0.025***	**0**.027***	**0**.028***
		(26.24)	(25.20)	(24.61)	(25.88)	(26.50)
EDUCATION 2		0.032***	0.025***	0.028***	**0**.029***	**0**.030***
		(24.43)	(20.08)	(23.83)	(23.34)	(22.88)
UNEMPLOYMENT		0.023***	0.010*	0.010*	**0**.012**	**0**.013**
		(4.35)	(1.80)	(1.84)	(2.20)	(2.42)
INCOME		-0.032***	-0.036***	-0.016**	**-**0.022***	**-**0.020***
		(-4.25)	(-4.83)	(-2.24)	(-2.90)	(-2.58)
CRIME		-0.002***	-0.002***	-0.001***	**-**0.001***	**-**0.001***
		(-13.12)	(-12.96)	(-7.10)	(-2.94)	(-3.29)
RELIGION MIX				-0.037***	**-**0.045***	**-**0.043***
				(-2.74)	(-3.36)	(-3.20)
CREEDLESS		-0.003***				
		(-2.84)				

<continued on next page>

Variable	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(5a)**
PROTESTANTS			0.046**			
			(2.36)			
CATHOLICS			0.047***			
			(2.81)			
MUSLIMS 2000			0.002	0.006**	**0**.008***	
			(0.72)	(2.17)	(2.89)	
MUSLIMS 2010						**0**.010***
						(2.59)
MIGRATION BALANCE				-0.047***	**-**0.035***	**-**0.033***
				(-11.76)	(-8.29)	(-7.61)
TERTIARY SECTOR				-0.003***	**-**0.002***	**-**0.002***
				(-8.21)	(-5.54)	(-5.36)
AGE 0-19					**0**.013***	**0**.014***
					(6.65)	(6.87)
AGE 20-39					**-**0.014***	**-**0.014***
					(-7.39)	(-7.28)
AGE 40-59					**0**.009***	**0**.009***
					(3.54)	(3.43)
FOREIGNERS			-0.003***			
			(-3.05)			
SVP			0.010***			
			(18.68)			
TURNOUT		0.004***				
		(4.11)				
Observations	2,449	2,448	2,437	2,448	**2**,431	**2**,352
R^2	0.19	0.73	0.77	0.75	**0**.76	**0**.76
Adjusted R^2	0.19	0.73	0.77	0.75	**0**.76	**0**.76
F-statistic	115.88	509.17	500.68	490.34	**4**33.52	**4**14.66

Notes: t-values in parentheses. *** indicates 1 % significance level, ** indicates 5 % significance level,* indicates 10 % significance level.

Alternative estimators

In this section we report the results of the minimum chi-square logit model and the fractional logit regression. The minimum chi-square method is an alternative to using empirical probabilities as weights for addressing the heteroskedasticity problem typical for voting analyses. In this method, a two-step procedure is applied. In the first step, the fitted probabilities are estimated by regression of the empirical probability on the set of exogenous variables. The estimated fitted probabilities are subsequently used for the calculation of weights. In the second step, the weights based on the first step estimates can be used for weighted least squares (WLS). This estimator has the same asymptotic properties as the maximum likelihood estimator (Green (2002, 688-689); Amemiya (1985, 275-280); Maddala (1983, 28-30)).

Alternatively to linear models using empirical probabilities $\tilde{P}_i$ or corresponded log-odds ratio as the dependent variable, Papke and Wooldridge (1996) specify a class of functional forms and propose a robust quasi-likelihood estimation method.[38] Papke and Wooldridge (1996) point out potential problems associated with the model described by the equation 3. The equation 3 cannot be estimated if any of the proportions $\frac{y_i}{v_i}$ are equal to zero or one. For those values the log-odds ratio $log\frac{\frac{y_i}{v_i}}{1-\frac{y_i}{v_i}}$ is not defined and the model cannot be applied without additional adjustments.[39] For the case that $\frac{y_i}{v_i}$ are fractions from a fixed number of groups with known group size, Papke and Wooldridge (1996) refer to the minimum chi-square method described for example in Maddala (1983, 30, see above). However, for some cases the minimum chi-square method is not applicable, for example, if the term $\frac{y_i}{v_i}$ is not a proportion from a discrete group size. Moreover, adjusting the extreme values is not a suitable strategy if a large part of the data is at the extreme

[38]Papke and Wooldridge (1996) propose a quasi-likelihood method based on the Bernoulli log-likelihood function $l_i(b) \equiv y_i log[G(x_i b)] + (1 - y_i) log[1 - G(x_i b)]$, where $G(\cdot)$ is a function satisfying $0 < G(\cdot) < 1$, for example logit or probit.

[39]One possibility, which is widely used is to add or subtract a small value, for example 0.001, to or from the given proportion if it is zero or one (see Green 2002).

values of zero and one. The fractional logit regression provided by Papke and Wooldridge (1996) is very well suited especially for handling fractional response data in which P_i takes on the values zero or one with positive probability.

This problem is not present in our data – $\frac{y_i}{v_i}$ never assumes a value equal to zero or one. We use this approach only as a sensitivity analysis (see Table A.4).[40] Column (1) shows the results using the minimum chi-square logit method. There are no significant deviations from our main results. Column (2) presents the estimates of the fractional logit regression. Most results are confirmed also by this method, especially our central result that a larger presence of Muslims is associated with higher approval rates for the referendum remains significant (at the 10 %-level). Yet, some economic factors are not longer significant (unemployment, income, and crime) and the Rhaeto-Romanic language group is no longer different from the French language group.

[40]We implement the fractional logit regression with Stata as shown in Baum (2008, 302).

Table A.4: Robustness analysis with alternative estimation methods

Variable	**M**inimum chi-square **l**ogit method	**F**ractional logit **r**egression
Constant	0.117 (0.67)	-1.720 (-4.51)
PERIPHERY	0.066*** (4.28)	0.129*** (3.81)
RURAL	0.094*** (4.81)	0.169*** (4.64)
GERMAN	0.399*** (19.65)	0.487*** (23.67)
ITALIAN	0.703*** (26.24)	0.620*** (19.35)
RHAETO-ROMANIC	-0.212*** (-2.73)	-0.096 (-1.57)
RELIGION MIX	-0.028** (-2.09)	-0.059*** (-3.68)
EDUCATION 1	0.028*** (26.57)	0.023*** (14.74)
EDUCATION 2	0.030*** (23.62)	0.024*** (12.91)
WOMEN	-0.047*** (-22.08)	-0.013*** (-2.59)
UNEMPLOYMENT	0.011** (2.07)	-0.002 (-0.35)
INCOME	-0.025*** (-3.19)	-0.005 (-0.35)
CRIME	-0.001*** (-3.90)	-0.0003 (-0.96)
MIGRATION BALANCE	-0.035*** (-8.04)	-0.112*** (-4.10)
TERTIARY	-0.002*** (-6.78)	-0.003*** (-6.94)
MUSLIMS 2000	0.006** (2.12)	0.006* (1.87)
AGE 0-19	0.014*** (7.17)	0.013*** (5.47)
AGE 20-39	-0.014*** (-7.21)	0.005* (1.69)
AGE 40-59	0.011*** (4.43)	0.009*** (2.61)
Observations	2,557	2,558
R^2	0.76	
Adj. R^2	0.76	
F-Statistic	457.23	

Notes: t-values / z-values in parentheses. The fractional logit regression is estimated using robust standard errors. *** indicates 1 % significance level, ** indicates 5 % significance level, * indicates 10 % significance level.