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**RELIGIOUS AFFILIATIONS IN AUSTRIA AT THE
PROVINCIAL LEVEL:
ESTIMATES FOR VORARLBERG, 2001-2018**

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Abstract

Religious affiliation is nowadays getting plenty of attention in Austria, in the public sphere with increased presence in the news and in the policy discourse. The aim of this study is to estimate the religious composition of the population of Vorarlberg in 2018, taking advantage of available data, such as census information and statistics on components of population change. The latest census that collected data on religion was implemented in 2001 and since then population counts have been relying on register data and did not collect data on the religious affiliation of the Austrian population. Therefore, to study changes in the religious composition of the population residing in Vorarlberg, it needs to be estimated using population projections following a methodology that was developed by Goujon et al. (2017) in a project to reconstruct (and project into the future) the population of Austria and Vienna in 2016. The reconstruction shows that Vorarlberg follows similar trends as those observed in Austria since 2001: 1) The share of Roman Catholics declines strongly, 2) there is a strong increase in the population with no religious affiliation, and 3) the share of Muslims has increased substantially which is the outcome of two main trends – fertility and migration. The study of the origin (country of birth) of Muslims residing in Vorarlberg in 2018 points at an increasing Austrian-born population, originating from parents or grandparents born predominantly in Turkey but also at a diversification as a result of the 2015 refugee crisis.

Keywords

Religious affiliation, Vorarlberg, Catholics, Muslims, fertility, migration, secularization, reconstruction.

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Religious Affiliations in Austria at the Provincial Level: Estimates for Vorarlberg, 2001-2018

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Introduction

The topic of religious affiliation is getting plenty of attention in the Austrian public sphere with increased presence in the news and in the policy discourse. This attention has two focuses: firstly, the recent (2015) intensified migration in-flows and whether they could upset the religious landscape dominated by the Roman Catholic Church in terms of numbers of affiliated members, especially regarding the relative share of Muslims in the population. The second focus has to do with the religiosity of the Muslim communities, whether they are migrants or natives, and the potential risk associated with their religious intensity. In this report, we do not study religiosity, which is difficult to quantify, but the change in religious affiliation of the population (first focus), in the province of Vorarlberg. Studying religious affiliation in Vorarlberg is particularly relevant since 1) in 2001, Vorarlberg was the Austrian province with the highest share of Muslims (8.5%), 2) at the same time the share of religiously unaffiliated persons was relatively low (6.1%), and 3) Vorarlberg was one of the provinces that received the most foreign migrants in 2015 (relative to its population) together with Vienna, Tyrol and Salzburg. This study is based on scientific methods and takes advantage of available data and proxy data, such as census information and statistics on components of population change, to estimate the 2018 population by religious affiliation. The latest census that collected data on religion was implemented in 2001. Since then population counts have been relying on register data. Data on the religious affiliation of the Austrian population was no longer collected. Therefore, to study changes in the religious affiliation of the population residing in Austria, it needs to be estimated using population projections as explained below. The methodology was developed by Goujon et al. (2017)¹ in a project to reconstruct (and project into the future) the population of Austria (as a whole) and Vienna in 2016².

In 2001, the population of Vorarlberg was distributed largely between three religious categories: Roman Catholics (79.2%), Muslims (8.5%), and unaffiliated (6.1%). Vorarlberg was the Austrian province with the highest share of Muslims (mostly of Turkish origin)³.

¹ The report is available here:

www.integrationsfonds.at/fileadmin/content/AT/Fotos/Publikationen/Forschungsbericht/Forschungsbericht_Demographie_und_Religion.pdf [on18/9/2018]

² Since both exercises follow the same methodology, we use many parts of the original text in the data and methodology section.

³ After proportional redistribution of persons who did not indicate their religious affiliation between all religious categories, the share of affiliated Muslims was 8.2% in Vienna, around 4-5% in Upper

The work presented here aims at answering the question of the impact of recent migration flows, particularly the wave of asylum seekers from Syria, Iraq and Afghanistan in 2015-16 (Buber-Ennsner et al. 2016, 2018) on the religious distribution of the population in the province of Vorarlberg.

In the first section, we present the data and methods to reconstruct the population to 2018 by six religious affiliations: *Roman Catholic*, *Protestant*, *Orthodox*, *Muslim*, *Other religions (or Others)*, and *Unaffiliated*. The results of the reconstruction are shown in the second section, in which we also compare Vorarlberg to Austria and Vienna (in 2016).

1. Data and Methodology

The reconstruction of the population of Vorarlberg is based on the latest available data on religious affiliation collected in the census of 2001. It follows the demographic methodology of multi-state population projections, which is an expansion of the cohort-component projection model, commonly used to project populations (Rogers 1975).

The projection from 2001 to 2018 is carried out in three steps of 5-year periods (2001-05, 2006-10, 2011-15) and a final 2-year period (2016-17) and requires the following information:

- Population by age, sex, and religion in 2001 (section 1.1);
- Fertility by age and religion from 2001 to 2017 (section 1.2);
- Mortality by age, sex and religion from 2001 to 2017 (section 1.3);
- Migration (in-and out-flows) by age, sex, and religion from 2001 to 2017 (section 1.4);
- Religious switching (mostly in terms of secularization) by age and sex from 2001 to 2017 (section 1.5).

Not all the needed information is readily available with the required detail and some estimation procedures had to be applied in order to come up with all the assumptions necessary for the projections to 2018.

1.1. Vorarlberg's Population by Religious Affiliation in 2001

The starting point for the estimation is the last assessment of religious affiliation in Austria, namely the 2001 census (May 15). The population of Vorarlberg in 2001 (on January 1⁴), by age, sex and six religious affiliations is represented in Figure 1.

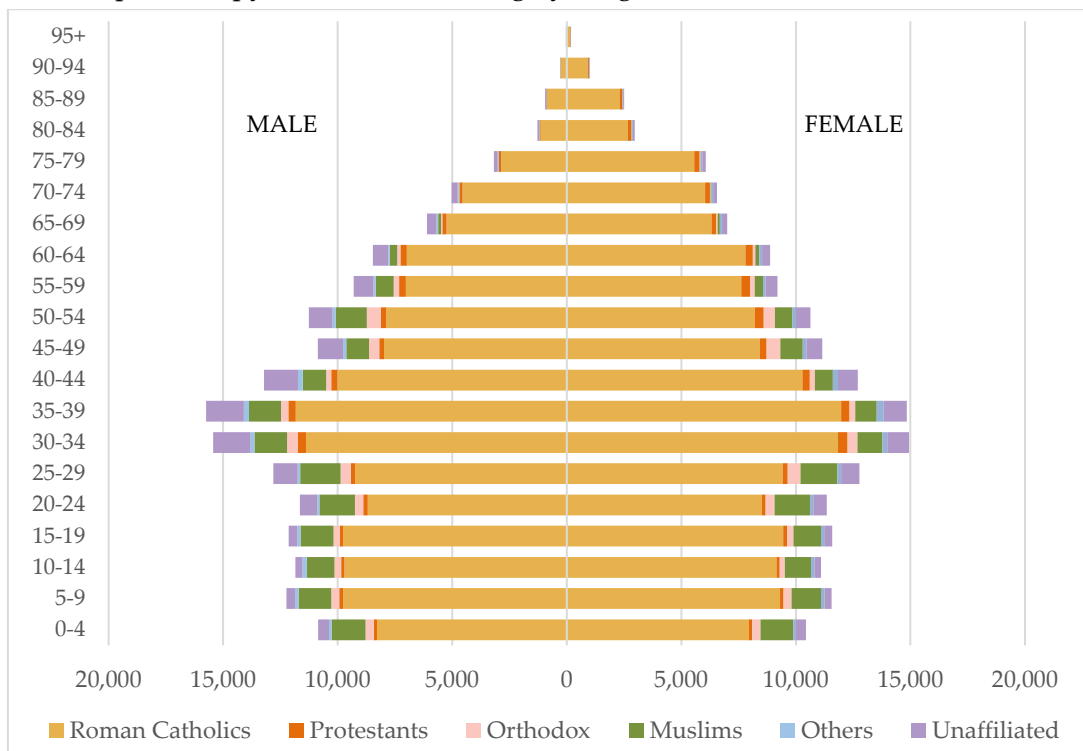
Austria, Salzburg and Tyrol, 3.2% in Lower Austria and less than 2% in Burgenland, Carinthia and Styria.

⁴ We have moved the census population collected on May 15, 2001 to January 1, 2001 and distributed the population who did not indicate their religious affiliation (1.5% of the population) between the six religious categories.

Out of the 351,000 inhabitants of Vorarlberg in 2001 a vast majority of about 277,000 (79%) declared to be Roman Catholics, 30,000 were Muslims (9%), and 21,000 were not-affiliated (6%). The rest of the population was distributed between Orthodox (3%), Protestants (2%), and other religions (1%).

Four main processes have been at work to modify the composition in the last 17 years: fertility and variation in childbearing among women with different religious affiliations, mortality, internal migration with the rest of Austria and international migration, and last but not least religious switching/mobility. These are detailed in the following sections.

Figure 1: Population pyramid of Vorarlberg by religion, 2001



Source: Authors' calculations based on Statistik Austria

1.2. Fertility

Religious affiliation is a significant determinant of fertility behaviour (McQuillan 2004) and one of the factors that can alter the religious composition of a society. To look at the differences in childbearing of different religious groups, we need information on fertility rates by religion. Those require information on a) the number of live births to mothers and b) the number of women of reproductive age (generally 15 to 49 years), both by age and religious affiliation. Statistik Austria collected and published data on the religion of mothers of every child born in Austria between 2001 and 2014 (birth register) but has since stopped doing so due to the increase in the non-response rate that affected data quality. For

the years 2015-2017⁵, we have information on the country of birth (CoB) of the mother and used this proxy⁶ to estimate the religious composition of births in 2015-2017⁷. This way we could also capture the increased number of births to Syrian and other asylum seekers who arrived in Austria in large numbers in 2015-2016.

Another missing piece is the data on the number of women by age and religion which are not available since 2001. This information is derived from the reconstruction based on the 2001 census, migration statistics 2001-2017 (random migrant assumption for religion), and mortality and secularisation trends, as detailed below.

The information on the religion of the mother that is available from the birth register suffers from several deficiencies for our purposes, particularly since the data are recorded in pre-defined categories⁸ that in some cases differ from our definitions. This has implications for our estimates. Recorded numbers of births to Roman Catholic, Protestant and Muslim women are more accurate than those to Orthodox, Other religions, and Unaffiliated women. Birth to women of Orthodox religion were estimated from the broader category '*Others*' using the information on country of birth of the mother for 2008-2017 and for 2001-2007 using the fraction of the estimated Orthodox births applied to the overall number of births in the category '*Others*'. These two groups, however, are rather marginal in Vorarlberg and therefore the annual number of births is rather small. Those with no religion and unknown/unreported religion are aggregated into a single category. Over time, the fraction of mothers not declaring their religious affiliation is increasing, boosting the number of births in this category. It is worth noting that that the refusal to report may affect data quality also for other groups, for example if Muslim women are more likely not to report their religion than others are. This issue is particularly acute for 2014. Therefore, we made the following adjustments:

- We have re-estimated the number of births in 2014 in category "no religion and unreported" based on the 2013 distribution and redistributed the difference in counts between other religious groups.

⁵ Data on country of birth are already available since 2008. Before 2008, we only know if the mother was born in Austria or abroad.

⁶ We have estimated the religious composition of the births to women of the major countries of origin (Austria, Turkey, Ex-Yugoslavia, other Europe, etc.) and used this information to estimate the number of births to Muslim mothers. To illustrate, if 95% of births to women coming from Middle Eastern countries were reported as Muslim in 2008-2013, we use this share to estimate how many of the births to women from the Middle East in 2015-2017 were to Muslim mothers.

⁷ Assuming random religious affiliation based on the CoB of migrants is in line with the results of other studies, e.g. the DIPAS survey (Buber et al. 2016) that showed that almost every asylum seeker from Syria and Iraq identified as Muslims.

⁸ The birth register information on religious affiliation is limited to the following categories: Roman Catholic, Protestant, Old Catholic, Jewish, Muslim, Jehovah's Witnesses, no religion or unknown, and other registered religion

- For 2015-2017, we have used country-of-birth information to estimate the number of births by religion using data on births by religion and country of birth in 2008-2013
- To estimate the fraction of births to Orthodox women we have also relied on country-of-birth information and inferred for 2001-2007 and for 2015-2018, using the share within the category '*Other religions*'.

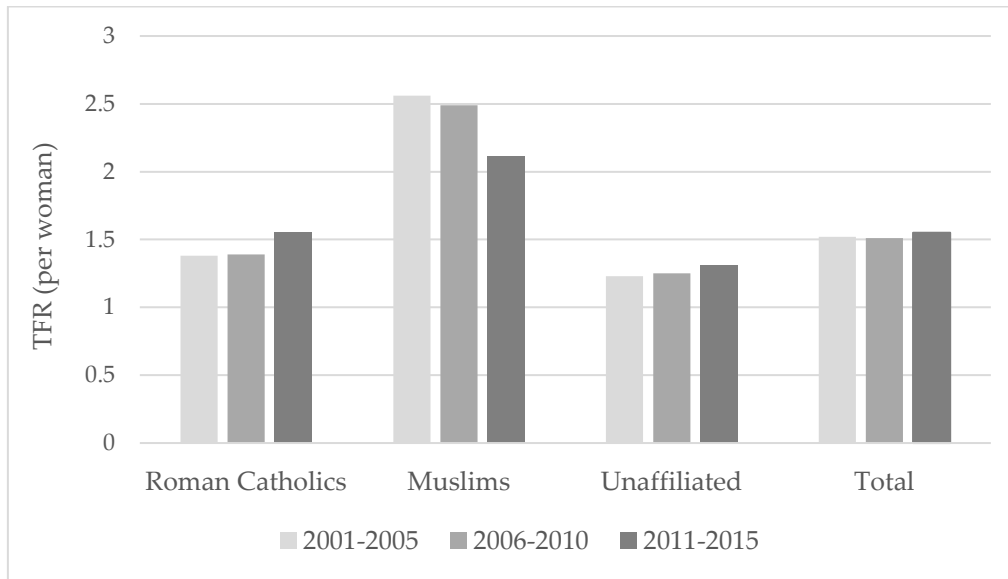
Total fertility rate (TFR) is the most widely used indicator for overall fertility. It tells the average number of children a woman would have over her lifetime if the age-specific fertility rates over the observation period lasted during her whole reproductive life. The overall TFR in Vorarlberg has slightly increased in 2011-15 (from 1.52 in 2001-05 to 1.55 in 2011-15). According to estimates from Statistik Austria, fertility in Vorarlberg has been further increasing since the 2015-17 period when the TFR was estimated at 1.71. This increase is the result of two phenomena: 1) live births increased due to the "catching up" effect of the previously postponed births – a general trend observed across Austria and other countries, also visible in the TFR of Roman Catholics and Unaffiliated; and 2) the share of births to foreign-born mothers has steadily increased from 28% in 2001 to 48% in 2015-17, also as a result of additional births by recent immigrants from Syria and other – predominantly Muslim – countries.

The differences in childbearing behaviour of the main religious groups (Catholics, Muslims, and Unaffiliated)⁹ remain significant with a difference in TFR of 0.8 between the Unaffiliated and Muslims in 2011-2015 (see Figure 2). As mentioned before, the fertility of Roman Catholics and Unaffiliated slightly increased over time due to the "catching up effect". These groups are largely composed of native-born populations. The trend over time is opposite among Muslims – a group predominantly composed of foreign-born women. The Muslims had the highest, but also fastest declining fertility: from 2.6 in 2001-05 to 2.1 in 2011-15.

The Muslim community in Vorarlberg has been long-established and the so-called second generation, i.e. children of immigrants who were born in Austria, become more prominent within the group. The share of live births to Muslim women who were born in Austria has increased from an estimated 22% in 2001 to 32% in 2015-2017. This is likely one of the main factors driving declining fertility rates of Muslims. The fertility rates of Muslim women who were born in Austria, i.e. the second generation, has been steadily declining (Figure 3) and in 2011-15 was at the level of the TFR of Vorarlberg. This means that – as theories of migrant fertility stated (e.g. Kulu and González-Ferrer 2014) – these women do not differ in their childbearing outcomes to other Austrian-born women. However, they differ a lot from foreign-born Muslim women. The gap in TFR of the two groups has been widening and in 2011-15 the difference in their fertility was 1 child per woman.

⁹ Although we have made the estimates for all religious groups for the reconstruction, we only show the results for the groups with satisfactory data quality.

Figure 2: TFR by religion in 2001-2015 in Vorarlberg



Source: Authors' calculations based on Statistik Austria

The high fertility of foreign-born Muslim women can be attributed to either higher fertility ideals or to compositional and tempo effects (Toulemon 2004). The compositional effect is related to the fact that new immigrants who were born and socialized in high fertility societies will be more likely to have more children. However, in most countries of origin of immigrants to Austria/Vorarlberg, fertility has been declining and is expected to keep on declining in the future. The tempo effect means that immigrant women tend to have higher fertility in the first years after arrival because migration delays fertility. This also means that any new substantial migration wave can temporarily increase fertility levels of Muslim women in Vorarlberg.

Figure 3: TFR of Muslim women born in Austria and abroad, Vorarlberg 2001-2015



Source: Authors' calculations based on Statistik Austria

1.3. Mortality

Mortality by religious affiliation is not available. The international evidence for a relationship between religion and mortality is also inconclusive. Thus, mortality rates are assumed to be identical across all religious affiliations in the present exercise. Mortality rates by 5-year age groups are extracted from life tables (“Jährliche Sterbetafeln”) available from Statistik Austria for Vorarlberg. Table 1 shows life expectancy at birth as used in the projection.

Table 1. Life expectancy at birth of men and women in Vorarlberg, 2001-2018

	Men	Women
2001-2005	77.1	82.8
2006-2010	78.4	83.8
2010-2015	79.5	84.6
2016-2017	80.0	84.6

Source: Authors’ calculations based on Statistik Austria

1.4. Migration

As shown by Goujon et al. (2014), migration is the main determinant of religious change in Austria. Data on internal and international migration flows are available from Statistik Austria on the Federal State level by age, sex and country of birth. Since 2002, migration statistics have been based on administrative registrations and de-registrations derived from the Central Register of Residence (Zentrales Melderegister, ZMR). Every person who enters or leaves Austria or changes his or her main residence within Austria is obligated to register and de-register within three working days after relocation. Foreign nationals are counted as migrants as soon as they have registered a main residence in Austria for at least 90 consecutive days, following the United Nations definition of short-term migration (91 days to 12 months).

Before 2002, it was not the Central Register of Residence reporting registrations, but local registers were individually transmitted to Statistik Austria. This change of systems resulted in a break in the time series, observable by a large under-recording of registrations within the old system as compared to those recorded in the Central Register of Residence. As there are no adjusted estimates for migration in Vorarlberg available for 2001, within our projections the year 2001 is entirely based on migration in 2002.

1.4.1. Random Migrant Assumption

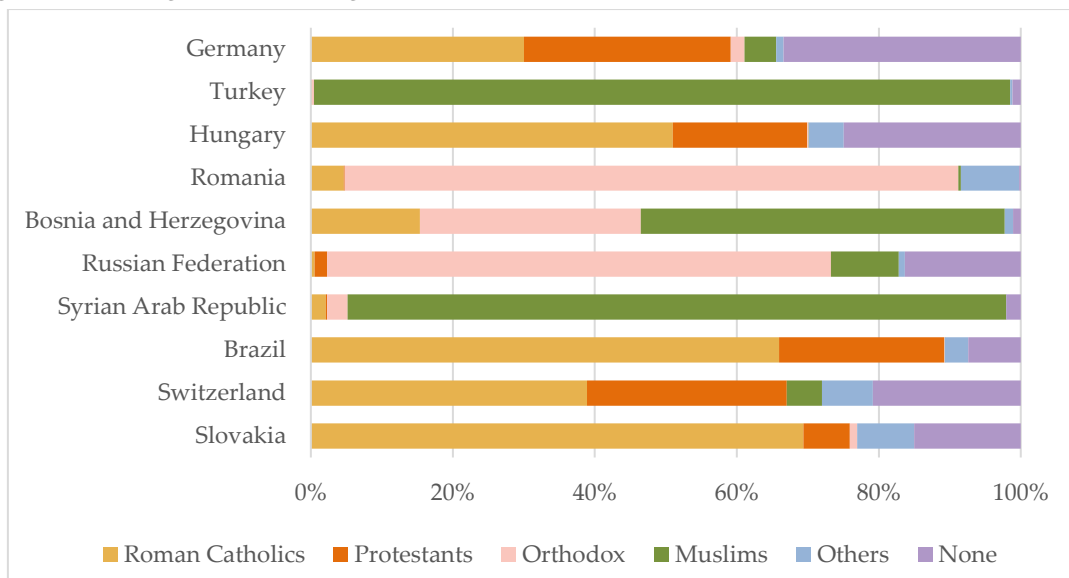
Since the information on the religious denomination of migrants is not available from the migration statistics, we assumed that the religious composition of migrants is the same as the religious composition of the people residing in their country of birth. For example, about 29% of the German population are Roman Catholics; hence, 29% of all migrants

coming to Vorarlberg with Germany as their country of birth are counted as Roman Catholics. We decided to choose country of birth rather than citizenship as the decisive attribute, as citizenship can be acquired in the years following the arrival in the country. Furthermore, first generation immigrants who were socialized in the context of their countries of origin tend to display distinct demographic behaviours that citizenship data might conceal.

The random migrant assumption is likely to reflect reality unless migrants are selected in terms of their religion or other characteristics closely associated with religion (e.g. ethnicity). This could be particularly the case for asylum seekers, since political oppression, discrimination, human rights abuse, and violent conflict are often associated with specific subpopulations, including religious minorities. However, in the absence of more precise data, the 'random migrant' assumption is still the best-possible proxy to link migrants with religious affiliations.

The shares of population by religion in the respective countries were retrieved in two ways: for the most prominent countries sending migrants to Austria, up-to-date data from the national statistics (census 2011 rounds) were collected whenever these were available (Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Georgia, Germany, Hungary, Republic of Moldova, Montenegro, Poland, Portugal, Romania, Serbia, Slovakia, and Switzerland). For all other countries, the shares rely on the data published by the Pew Research Center (2011, 2012). As can be seen in Figure 4, the religious composition of some of the most prominent countries of origin of migrants coming to Vorarlberg vary substantially.

Figure 4: Religious composition of some of the most prominent countries of origin of migrants coming to Vorarlberg



Source: Authors' calculations based on national statistics (2011), PEW Research Center (2011, 2012)

1.4.2. Migration Results

Table 2 gives an overview of the ten most prominent countries of origin (disregarding Austria) of both internal (within Austria) and international migrants coming to Vorarlberg during the period 2001 to 2017. Apart from Germany, which remains the most prominent country in all years, significant changes in the distribution of countries of origin took place in the periods 2011-2015 and 2016-2018. With the arrival of many migrants from the Syrian Arab Republic and Afghanistan, these countries partly replaced some Eastern European countries among the top sending countries of previous years. Despite immigration from Turkey constantly diminishing during the 17 years of observation, Turkey remains among the top 5 countries of origin during the whole period.

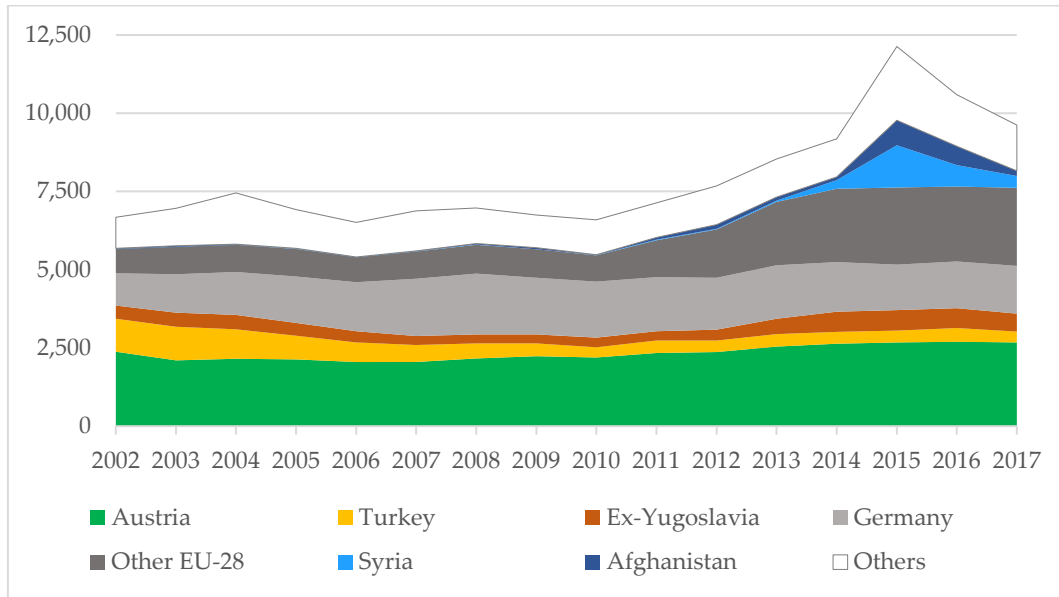
Table 2: Immigration (international and internal) to Vorarlberg: Top 10 countries of origin (aside from Austria) in the respective periods

2001-2005	2006-2010	2011-2015	2016-2017
Germany	Germany	Germany	Germany
Turkey	Turkey	Hungary	Romania
Serbia & Montenegro	Russian Federation	Turkey	Hungary
Bosnia-Herzegovina	Bosnia-Herzegovina	Romania	Syrian Arab Republic
Brazil	Brazil	Syrian Arab Republic	Turkey
Russian Federation	Romania	Bosnia-Herzegovina	Afghanistan
Croatia	Switzerland	Afghanistan	Bosnia-Herzegovina
Switzerland	Slovakia	Slovakia	Bulgaria
Hungary	Hungary	Serbia	Serbia
Ukraine	Poland	Russian Federation	Slovakia

Source: Statistik Austria

Changes in composition and extent of immigration over time are particularly noticeable when looking at Figure 5, depicting both internal and international immigrants moving to Vorarlberg between 2002 and 2017 by selected countries of birth. While immigration at the beginning of the century was characterized by rather stable numbers and people originating mainly from Europe, the number of people immigrating to Vorarlberg clearly peaks in 2015, indicating the high influx of refugees and asylum seekers who came to Austria mainly from Syria and Afghanistan.

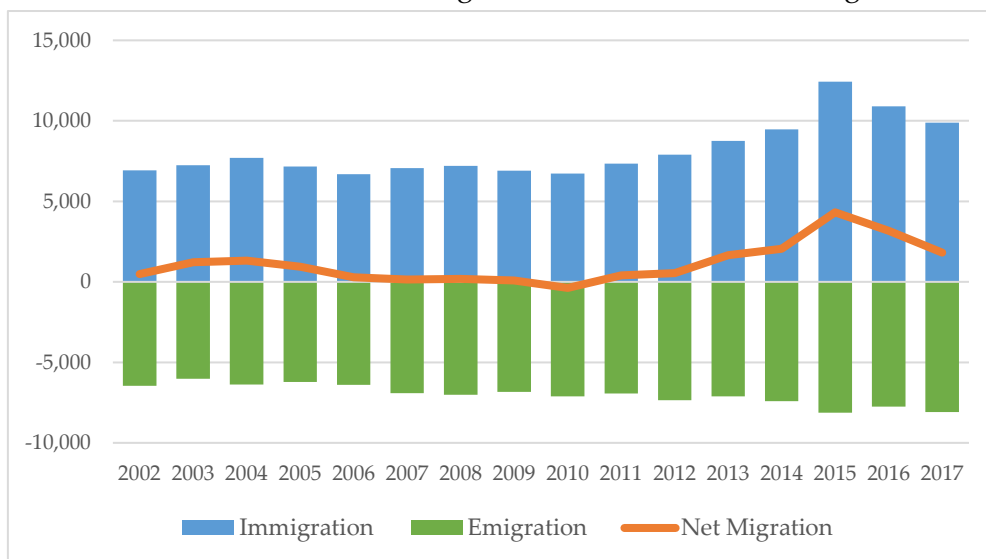
Figure 5: Immigration to Vorarlberg by selected countries of birth, 2001-17



Source: Authors' calculations based on Statistik Austria

Figure 6 reports immigration to and emigration from Vorarlberg as well as the resulting net-migration between 2002 and 2017. Due to relatively high numbers of both in- and out-migrants, net-migration in Vorarlberg has remained largely moderate. However, there are considerable differences between international and internal migration: whereas Vorarlberg lost population through people moving to other Federal States of Austria in all periods except the last (-1,278 in 2001-2005, -1,711 in 2006-2010, -336 in 2011-2015, 796 in 2016-2017), international net-migration is positive during the whole time period (5,702 in 2001-2005, 2,019 in 2006-2010, 9,309 in 2011-2015, and 4,174 in 2016-2017).

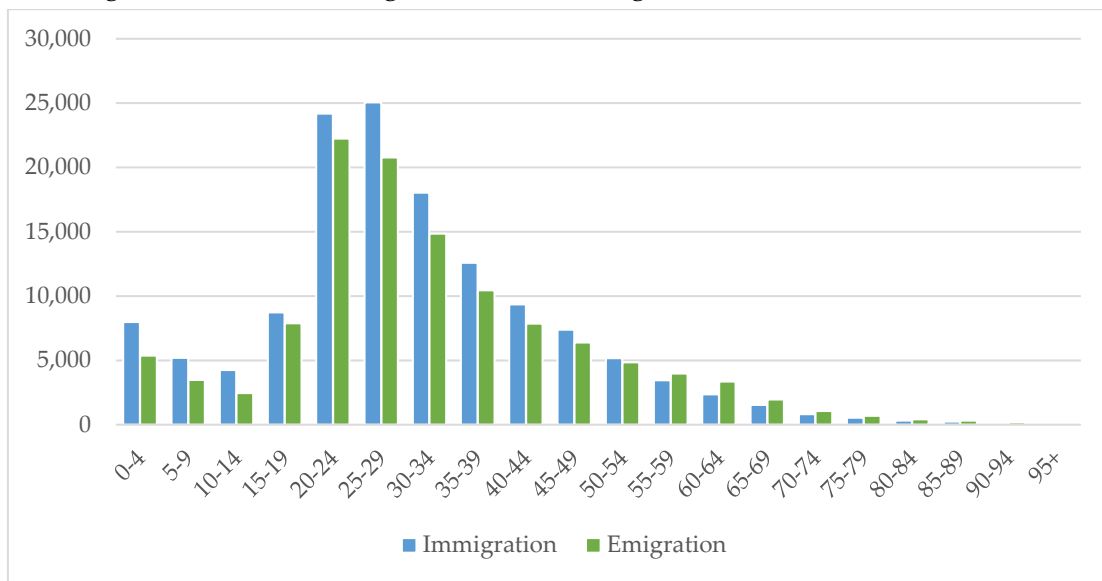
Figure 6: International and internal migration to and from Vorarlberg, 2002-2017



Source: Statistik Austria

Migration shows a strong association with age. Usually, persons in their twenties are most likely to migrate, with decreasing migration rates beyond that age. This is in line with the observed migration patterns to and from Vorarlberg. When looking at the whole period from 2001 to 2017, about 58% of all migrants were between 20 and 40 years of age. While the majority of net migrants was female in the periods 2001-2005 (62%) and 2006-2010 (65%), in the 2011-2015 period about 58% of the net migrants were men. From 2016-2017 the distribution between sexes of net migrants was relatively equal, with about 51% being men and 49% being women.

Figure 7: Age distributions of migrants in Vorarlberg, 2001-2017



Source: Statistik Austria

The total number of people immigrating (internationally and internally) to Vorarlberg in 2001 to 2005 was 35,958. Looking only at international immigration, the most prominent countries of birth were Germany, Austria, Turkey, Brazil, and Bosnia and Herzegovina. Internal in-migration was dominated by people born in Austria (65%), followed by Turkey (6%) and the Russian Federation (5%). In total, 31,534 people moved away from Vorarlberg between 2001 and 2005, the majority of them (67%) moving to a foreign country. Most people leaving Vorarlberg were Austrians (49%), 12% came originally from Germany, and 7% were born in Turkey. As regards the religious composition of the migrants in this period, about 52% of the net-migration gain can be attributed to Muslims, 16% to the Orthodox faith, followed by Protestants (14%) and those without a religious affiliation (13%). With -1,586 net migrants being Roman Catholics, these were the only religious group with a negative net-migration in this period.

Net-migration to Vorarlberg decreased considerably in the period 2006-2010 to only 308 people. 2010 is the only year in the observation period when more people left Vorarlberg than entered the Federal State. Again, there are substantial differences between

international and internal net-migration. 24,590 people from foreign countries migrated to Vorarlberg in this period, with the most prominent countries of birth being the same as in the previous period (Germany, Austria, Turkey, Brazil, and Bosnia and Herzegovina). Internal in-migration amounted to 9,991 people, with the vast majority (65%) of them being Austrians. From the 34,273 people leaving Vorarlberg in the 2006-10 period, approximately two thirds moved to a foreign country. These outward flows are – as in the past – strongly dominated by Europeans (91%), half of which are Austrians (46%). Protestants had the highest share of the net-migration gain with 33%, followed by people without a religious affiliation (29%), the Orthodox (17%), and Muslims (15%). Roman Catholics again experienced a considerable decline: while 14,658 Roman Catholics moved to Vorarlberg, 17,213 left the Federal State during this period.

With net-migration amounting to 8,973 people in the 2011-15 period, the net number of people moving to Vorarlberg almost multiplied thirtyfold compared with the previous period. In total, 32,668 international immigrants arrived in Vorarlberg. But not only international immigration increased, also internal in-migration continued to rise, resulting in a considerably lower internal net-migration loss as compared with the previous periods (-336). In total, 46,684 people moved to Vorarlberg during 2011 and 2015. The changing migration pattern towards Austria, driven by the refugee movement, also affected Vorarlberg, causing Syria and Afghanistan to be among the most important countries of origin of immigrants. The share of immigrants born in a European country decreased, compared with the previous period, from 89% to 83%. Overall, 36,925 people left Vorarlberg. As in the previous years, the outward migration movement is again characterized by a strong European component with 91% of European background. Under those circumstances, the share of Muslims within the total net-migration gain increased to 46%, whereas the share of Protestants declined to 13%. The Orthodox contributed to the total net-migration gain with 21% and those without a religious affiliation with 15%. Roman Catholics again experienced negative net-migration, however, with only 195 more Roman Catholics leaving than arriving, the decline significantly decreased.

Finally, the years 2016 and 2017 are characterized by a diminution of both international and internal net migrants. In total, 20,795 people moved to Vorarlberg within these two years, whereof 14,361 came from a foreign country. With 80% of immigrants being born in a European country, this is the lowest share out of all periods. Similar to the previous period, a shift in countries of origin from Eastern and South-eastern European countries (e.g. Turkey, Bosnia and Herzegovina, Serbia,) to countries like Syria and Afghanistan is observable. In terms of emigration, internal out-migration within Austria slightly declined compared to 2015, resulting in 5,638 people moving from Vorarlberg to another part of Austria in 2016 and 2017. Emigration to a foreign country, however, remains at a rather high level, with 10,187 people leaving the country in these two years. Again, out-migrants are predominantly from Europe: 86% of all people leaving the country between 2016 and 2017 were born in a European country, roughly half of them in Austria. As regards religious denominations, 2016-2017 is the only period where all religious groups experience a net-migration gain. Consequently, this is the first period where more Roman Catholics enter

than leave Vorarlberg. However, the highest share of net-migration gain is due to Muslims (36%), followed by Orthodox (24%) and Roman Catholic Christians (13%).

Figure 8 and Table 3 present an overview of the religious distribution of net migrants from 2001 to 2017.

Figure 8: Estimated religious distribution of net-migration for Vorarlberg from 2001 to 2017

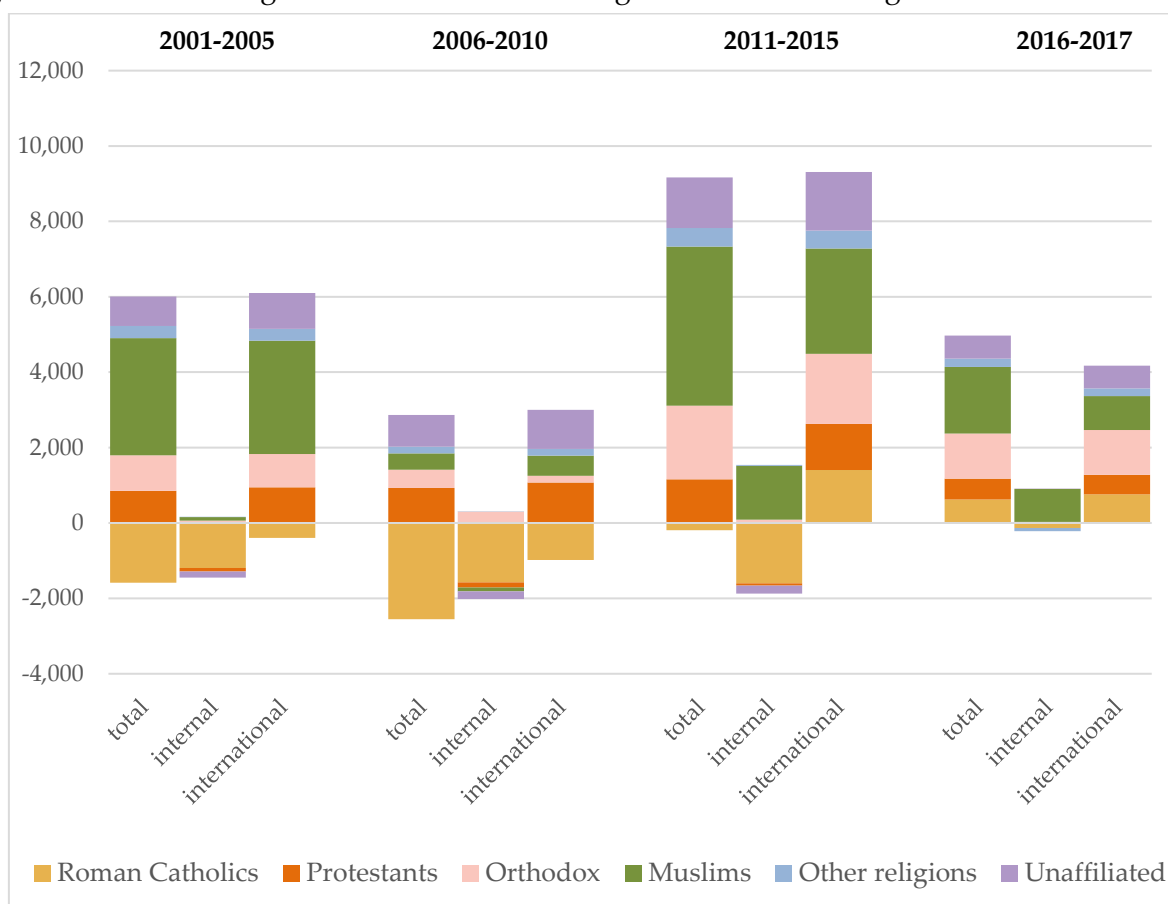


Table 3: Estimated religious distribution of net-migration for Vorarlberg from 2001 to 2017

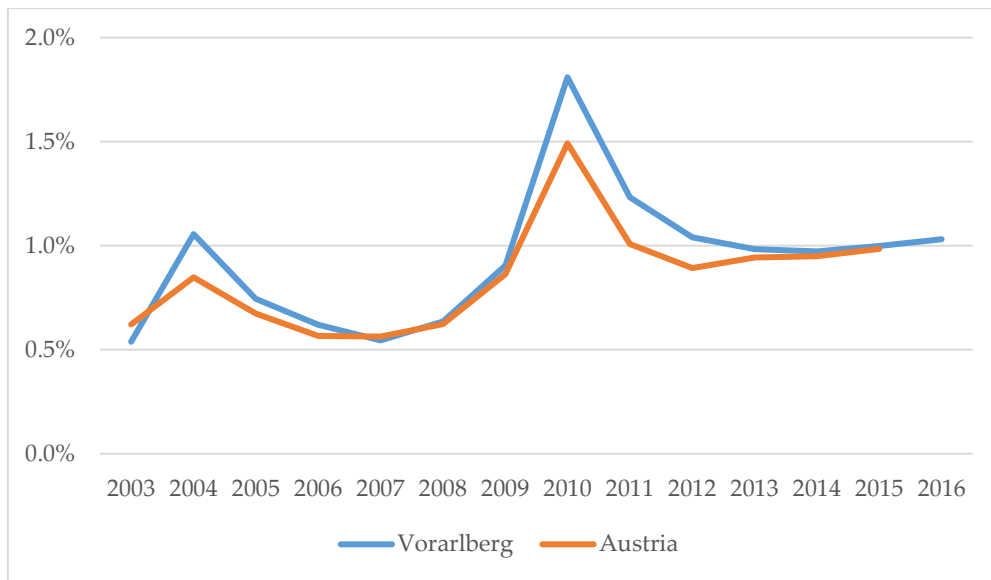
	2001-2005	2006-2010	2011-2015	2016-2017
Roman Catholics	-1,586	-2,555	-195	626
Protestants	852	933	1,162	546
Orthodox	947	477	1,972	1,197
Muslims	3,103	433	4,220	1,771
Other religions	324	185	497	224
Unaffiliated	783	835	1,340	606

Source for Figure 8 and Table 3: Authors' calculations based on Statistik Austria

1.5. Secularization

As shown by Goujon et al. (2017), secularization and (to a lesser extent) religious conversions have been affecting the religious landscape of Austria over the last decades. Figure 9 shows the change in the religious composition of Vorarlberg in terms of entrance and exit from the Roman Catholic Church. This pattern is similar throughout the whole of Austria. We therefore use the information about rates of transition from the Catholic and Protestant Churches to the unaffiliated category as calculated for Austria (Goujon et al. 2014) by age and sex. Based on the statistics on entrance to the Catholic and Protestant Church, we also derive some minor transitions from the unaffiliated category to these two groups, particularly at older ages when religion may become important (again) (Schultz-Hipp 2001).

Figure 9: Net share of people leaving the Catholic Church (exits minus entrances) as a proportion of the Catholic population, Vorarlberg and Austria, 2003-2016



Source: <https://www.katholisch.at/statistik>

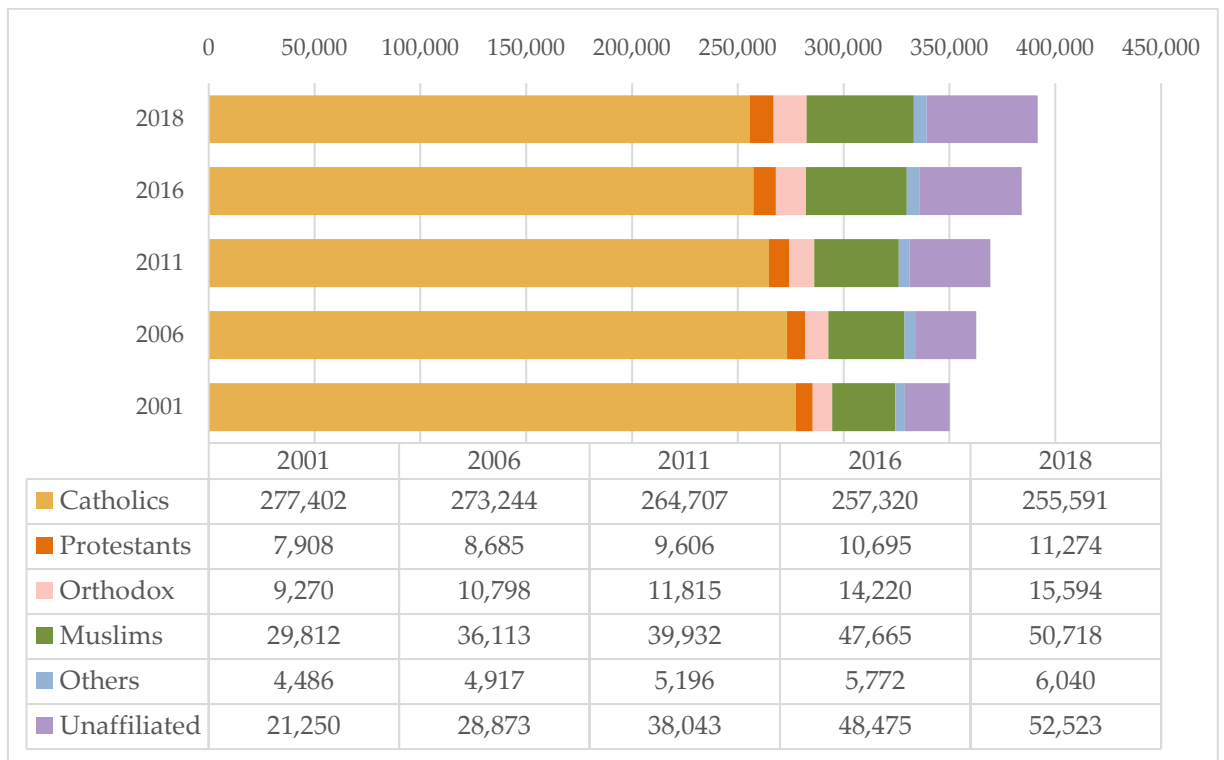
Official statistics on religious switching for Orthodox and Muslims are not available; we therefore used the data from the Gender and Generations Survey (GGS) which indicates that about 5% of Orthodox or Muslims changed their affiliation, and that the exits were mostly to no religion.

Based on the information on the base-year, fertility, mortality, migration and secularization, we estimated the religious affiliation of the population of Vorarlberg from 2011 to 2018.

2. Estimates of the Religious Affiliation of the Population in 2018

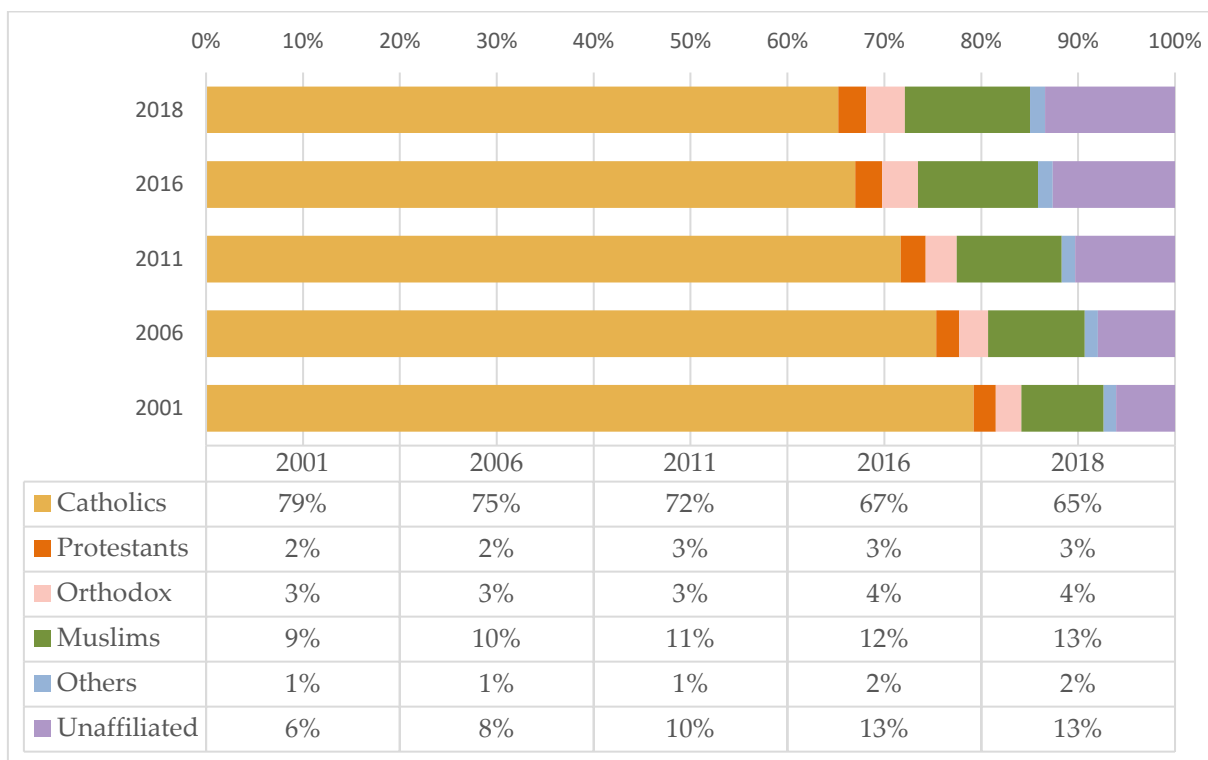
The reconstructed population of 2018 by religion shows that the religious composition of the population in Vorarlberg has changed noticeably since 2001. The most noticeable variation is the decline in Roman Catholics, both in relative and in absolute terms, from 79% in 2001 to 65% in 2018. This is the result of two main trends: the increase in the population with no affiliation, that more than doubled between 2001 and 2018, and whose share in the total population increased from 6% to 13%. The second trend derives from migration that has increased the number of Protestants, Orthodox and Muslims in the population. Most notably, the share of Muslims has increased from 8.5% to 13% between 2001 and 2018 (from 30,000 to 50,000).

Figure 10: Absolute population of Vorarlberg by religious affiliation, 2001-2018



Source: Authors' calculations based on Statistik Austria

Figure 11: Share of the Vorarlberg population by religious affiliation, 2001-2018



Source: Authors' calculations based on Statistik Austria

2.1. Comparison with the Religious Affiliation in Austria and in Vienna

In 2017, Goujon et al. estimated the 2016 population in Austria and in Vienna. The population was further projected to 2046 under four scenarios of possible developments. Table 4 compares those results (interpolated between 2016 and 2021 – there is no significant difference between scenarios in 2018) with the results obtained in the present exercise.

Table 4: Comparison of reconstruction of the religious composition in 2018 between Austria, Vienna and Vorarlberg

Religion:	Austria		Vienna		Vorarlberg	
	2001	2018*	2001	2018*	2001	2018
Catholics	75%	63%	49%	34%	79%	65%
Protestants	5%	5%	5%	4%	2%	3%
Orthodox	2%	5%	6%	10%	3%	4%
Muslims	4%	8%	8%	15%	9%	13%
Other	1%	2%	7%	6%	1%	2%
Unaffiliated	12%	18%	26%	30%	6%	13%

* Interpolated between 2016 and 2018.

Source: Goujon et al. 2017; Authors' calculations based on Statistik Austria

Vorarlberg shows similarities with both Austria and Vienna. The share of Catholics in 2001 that was close to the national average (79% vs. 75%) dropped significantly over the next 17 years in both Vorarlberg and Austria as a whole (65% vs. 63% in 2018). The 2001 share of Muslims in Vorarlberg was at about the same level as in Vienna (9% vs 8%). The estimates do suggest, though, that the increase since then has been slightly stronger in the Viennese population, as in 2018 about 15% of the city of Vienna has a Muslim affiliation compared to 13% in Vorarlberg. The main difference between the three entities concern the unaffiliated population. In 2018, only 13% of the Vorarlberg population is estimated to be unaffiliated (the share doubled since 2001), while it is 18% in Austria (12% in 2001) and 30% in Vienna (26% in 2001).

3. Estimates of Country of Origin of Muslim Population in Vorarlberg in 2018

3.1. Categorization

For estimating the country-of-origin distribution of the reconstructed 2018 Muslim Population in Vorarlberg, their CoBs are broadly divided into five different categories:

- Muslims born in **Austria** (mainly second and third generation immigrants)
- Muslims born in **Turkey**
- Muslims born in **Ex-Yugoslavian countries** (Bosnia and Herzegovina, Croatia, Kosovo, Macedonia, Montenegro, Serbia, Slovenia,)
- Muslims born in **EU-28** countries (excluding Austria, Croatia, and Slovenia, as they are included in other categories)
- Muslims born in **other countries**

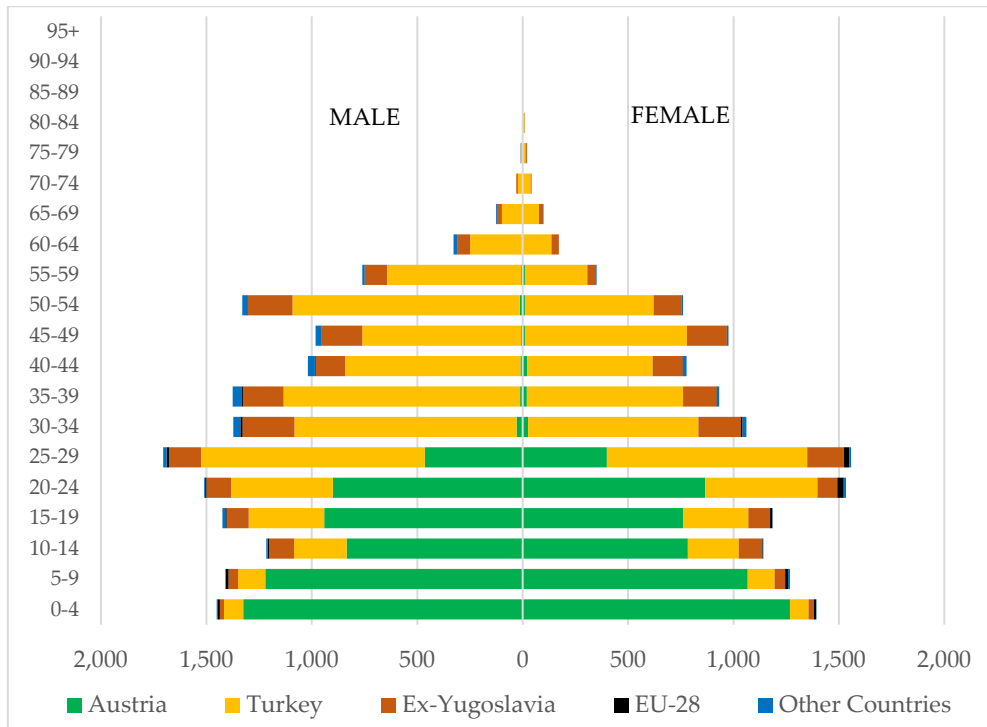
3.2. Muslim Population in Vorarlberg in 2001

In the 2001 Census 29,334 Muslims were counted as residents in Vorarlberg. Figure 12 shows the distribution of the Muslim population by age, sex and CoB category as of May 2001. Roughly half of the Muslims residing in Vorarlberg at that time were born in Turkey; an additional 38% were born in Austria, with most of them concentrated among the lower age groups (0-24 years), suggesting that there is already a considerable number of 2nd generation immigrants. Another 11% were originally from Ex-Yugoslavian countries, with the majority of them being born in Bosnia and Herzegovina. The rest (approximately 2%) were born in other EU-28 and other non-EU countries.

Compared to the age and sex distribution of the total population of Vorarlberg in 2001 (see Figure 1), Muslims were considerably younger and had a higher share of males: whereas the median age group for the overall population of Vorarlberg in 2001 was 35-39,

for Muslims it was 25-29. Moreover, 55% of Muslims residing in Vorarlberg in 2001 were male, compared to 49% of the total population.

Figure 12: Muslim population in Vorarlberg by age, sex, and CoB category in 2001

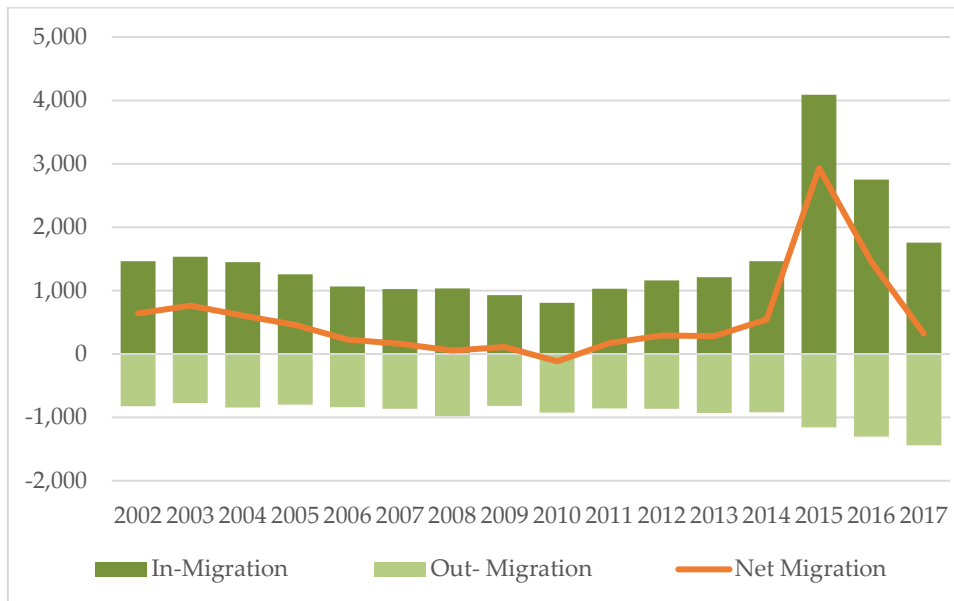


Source: Statistik Austria

3.3. Muslim Migration to and from Vorarlberg

Applying the 'Random Migrant Assumption', Muslim net migration for Vorarlberg between the years 2001 and 2017 amounted 9,527 persons. As can be seen on Figure 13, Muslim migration to and from Vorarlberg follows a time pattern very similar to overall migration (see Figure 6), however, with higher up-and-down-turns: after a moderate decline between 2003 and 2010, net-migration started to increase again, rapidly rising and peaking in 2015, with a considerable diminution ever since.

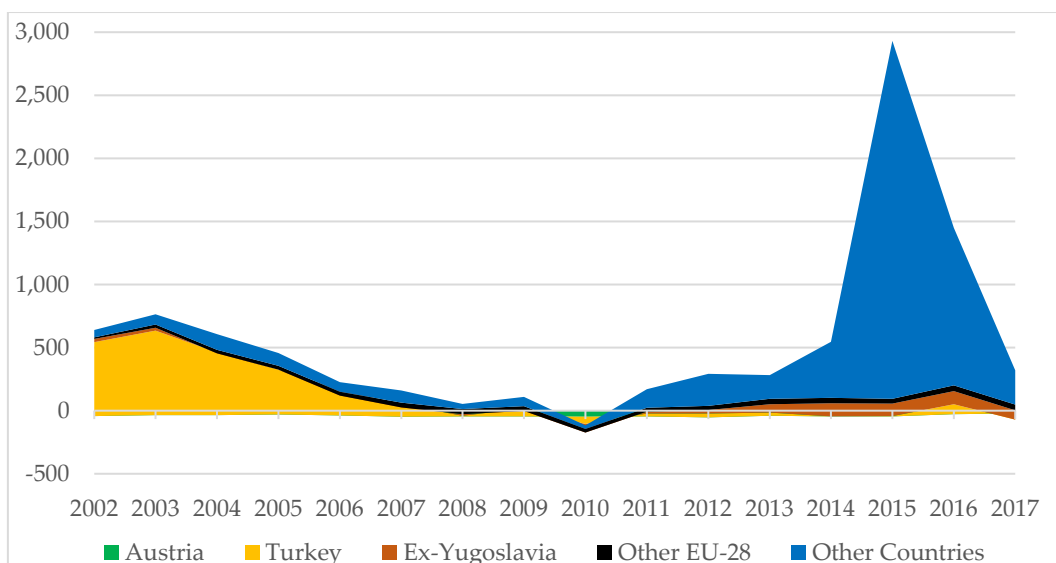
Figure 13: Muslim migration to and from Vorarlberg, 2002-2017



Source: Authors' calculations based on Statistik Austria

As regards origins, Figure 14 shows net-migration by CoB between 2002 and 2017, indicating large differences in both volume and origin over time. While until 2007, the largest share of Muslim migrants was born in Turkey, countries of origin changed thereafter. Between 2011 and 2017, Muslim immigration largely originated in Syria, Afghanistan, and Iraq. This changing pattern in CoB of Muslim migration naturally also alters the composition of the Muslim population in Vorarlberg in 2018 as compared to their primary origins in 2001.

Figure 14: Muslim net-migration to Vorarlberg by CoB category, 2002-2017

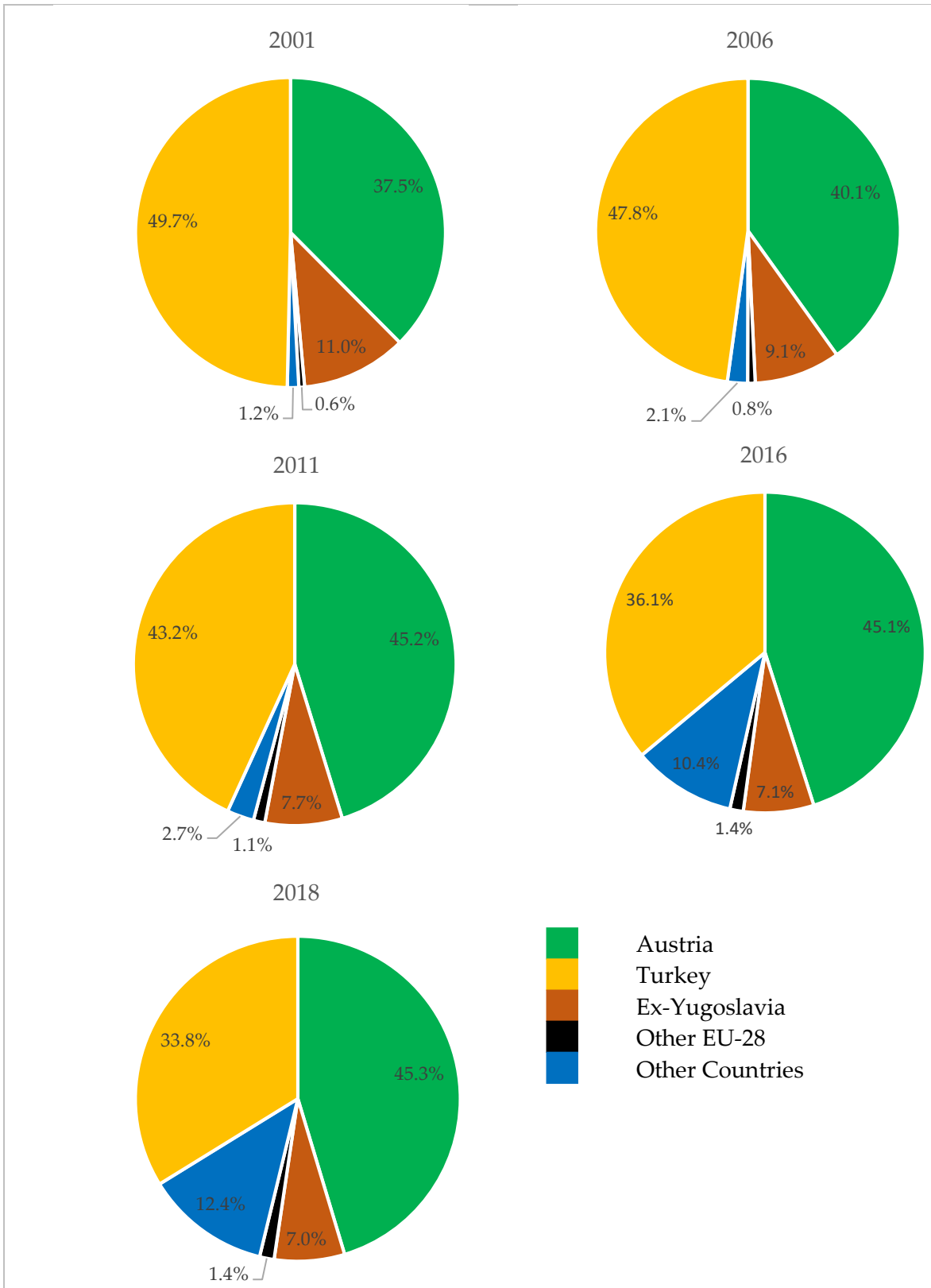


Source: Authors' calculations based on Statistik Austria

3.4. Diversification of the CoB of Muslims

The trends highlighted above result in substantial changes in the CoB distribution of Muslims residing in Vorarlberg. Less Muslims were born in Turkey (from 50% in 2001 to 34% in 2018), more were born in Austria (from 38% to 45%), and a substantial increase can be observed in the Muslim population who was born in other countries (from 1% to 12%), particularly in Syria and Afghanistan.

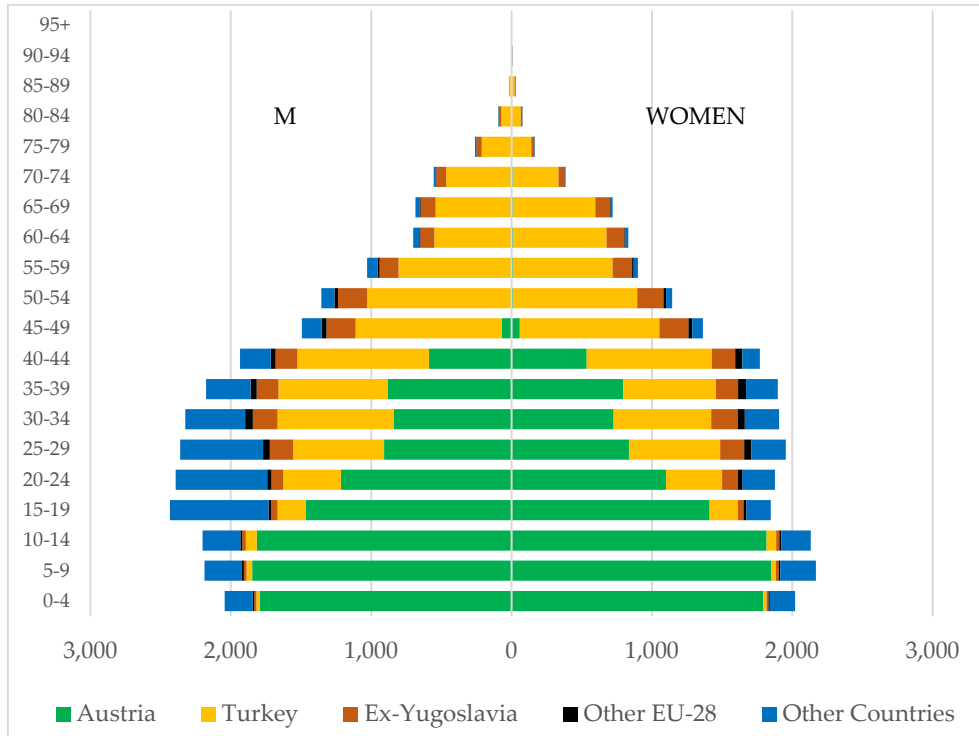
Figure 15: Country of birth of Muslims in Vorarlberg by CoB categories, 2001-2018



Source: Authors' calculations based on Statistik Austria

Figure 16 shows the age pyramid of the Muslim community living in Vorarlberg in 2018 by CoB. Compared to 2001 (Figure 12), a much larger proportion of Muslims among the younger age groups belongs to the second generation of Muslims already born in Vienna. It also shows the arrival of new migrants in the recent years at young ages.

Figure 16: Muslim population in Vorarlberg by age, sex, and CoB category in 2018



Source: Authors' calculations based on Statistik Austria

Conclusion

The religious landscape of Vorarlberg has indeed changed between 2001 and 2018 according to our estimates. The share of Muslims increased from 8.5% to 13% in 17 years. The change in the distribution by religion is not as dramatic as in the province of Vienna, particularly in terms of the unaffiliated that represents still a low share of the population. However, the Roman Catholic Church weights much less in the population than it did at the beginning of the century. The composition of the Muslim population has changed drastically during the window of observation: More and more Muslims with Turkish background are second or more generation. There is a strong diversification of the Muslim community mostly because of the refugee crisis in 2015/16. The latest available data show a drastic reduction in the net-migration numbers to Vorarlberg, a trend, if continued that could lead to slower religious diversification in the province.

References

- Buber-Ennsner, I., Goujon, A., Kohlenberger, J., Rengs, B. 2018. Multi-Layered Roles of Religion among Refugees Arriving in Austria around 2015. *Religions* 2018, 9(5), 154. doi.org/10.3390/rel9050154
- Buber-Ennsner I., J. Kohlenberger, B. Rengs, Z. Al Zalak, A. Goujon, E. Striessnig, M. Potančoková, R. Gisser, M. R. Testa, W. Lutz. 2016. Human Capital, Values, and Attitudes of Persons Seeking Refuge in Austria in 2015. *PLoS ONE* 11 (9): e0163481. doi:10.1371/journal.pone.0163481.
- Goujon et al. 2014. WIREL project key findings: Religions in Vienna in the past, present and future. Vienna: Vienna Institute of Demography.
- Goujon, A., S. Jurasszovich, M. Potancoková. 2017. Demographie und Religion in Österreich: Szenarien 2016 bis 2046. ÖIF-Forschungsbericht. Vienna: Austrian Integration Fund.
- Kulu, H. and A. González-Ferrer. 2014. Family dynamics among immigrants and their descendants in Europe: Current research and opportunities. *European Journal of Population*, 30(4): 411-435.
- McQuillan, K. 2004. When Does Religion Influence Fertility? *Population and Development Review*, 30(1), 25-56. Retrieved from <http://www.jstor.org/stable/3401497>
- PEW Research Center. 2011. Global Christianity. Available at: <http://www.pewforum.org/2011/12/19/global-christianity-exec/> (last accessed 13.02.2017).
- PEW Research Center. 2012. The Global Religious Landscape. Available at: <http://www.pewforum.org/2012/12/18/global-religious-landscape-exec/> (last accessed 13.02.2017).
- Rogers, A. 1975. *Introduction to Multiregional Mathematical Demography*. New York: John Wiley.
- Schultz-Hipp, P. L. 2001. Do spirituality and religiosity increase with age? In D. O. Moberg (Ed.), *Aging and spirituality*, New York: Haworth Pastoral, pp. 85–97.
- Toulemon, L. 2004. Fertility among immigrant women: new data, a new approach. *Population and Societies*, N. 400: 1-4. Available at: <http://www.demogr.mpg.de/papers/working/wp-2014-001.pdf> (last accessed 15.02.2017).

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