

Religiousness and Fertility among European Muslims

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ACCORDING TO POPULAR belief, the fertility of Muslims in Europe is much higher than that of non-Muslims. This belief stems, at least in part, from the general impression of high fertility in Muslim countries in the Middle East, Asia, and Africa. The notion of high Muslim fertility in Europe fuels concerns about Muslims' increasing immigration, growing numbers, and resistance to assimilation into European society, leading to dire predictions that Muslims are "about to take over Europe" (Lewis 2007) or that "much of what we loosely call the Western world will not survive this century, and much of it will effectively disappear within our lifetimes, including many if not most Western European countries" (Steyn 2006).

This analysis first compares Muslim and non-Muslim fertility in Europe and examines how the fertility of both populations is changing over time. It then focuses on the influence of religiousness on fertility to determine whether Muslims in Europe are more religious than non-Muslims and, if so, whether this influences their fertility. Table 1 provides an overview of the Muslim population in Europe at the beginning of the twenty-first century. Of the estimated 35–45 million Muslims in Europe, around 15 million reside in Western Europe, close to 8 million in Central and South-Eastern Europe, and between 15 and 20 million in the Russian Federation. The estimates are reasonably accurate for many of the smaller countries, as well as for Germany, Britain, and the Netherlands. For other countries, including France, Spain, and Italy, there is considerable uncertainty about the estimated size of the Muslim population. The numbers of illegal immigrants in these countries, many of whom are presumed to be Muslim, are unknown. Also, statistical practices and definitions differ from one country to another so that the data in Table 1 can be considered useful only for basic orientation.

TABLE 1 Estimates of Muslim populations in Europe between 2000 and 2005

Region/ country	Thousands	Percent of total population	Region/ country	Thousands	Percent of total population
Europe	35–45,000	5–6	Eastern and Central Europe		
Western Europe			Kosovo	1,800	90
France	4–6,000	6–10	Albania	2,200	70
Netherlands	945	7	Bosnia and Herzegovina	1,500	40
Denmark	270	5	Macedonia	630	30
Austria	340	4	Bulgaria	900	12
Belgium	375	4	Serbia and Montenegro	540	5
Germany	3,000	4	Slovenia	48	2
Switzerland	311	4	Croatia	45	1
United Kingdom	1,620	3	Hungary	60	<1
Sweden	333	3	Romania	68	<1
Spain	1,000	2			
Italy	1,000	2	Russian Federation	15–20,000	10–14
Norway	80	2			

SOURCES: National statistical agencies, government estimates, US State Department estimates, many summarized in BBC News, "Muslims in Europe: Country Guide," December 2005 «http://news.bbc.co.uk/2/hi/in_depth/europe/2005/muslims_in_europe/default.stm»; MSNBC, Islam in Europe «<http://www.msnbc.msn.com/id/12757599/>»; Peach 2006; Tribalat 2004.

Almost all of the Muslims in Central and Eastern Europe live in the Balkans. (Kosovo, although formally part of Serbia, is listed as a country in Table 1.) This part of Europe belonged to the Ottoman Empire for many centuries, and the countries gained independence during the nineteenth century. The Muslims are mostly autochthonous populations that had converted to Islam or are of Turkish descent. The large numbers of Muslims in the Russian Federation are not immigrants. They live in areas where the Muslim faith has been prevalent for centuries: in Tatarstan, Bashkiria, the Northern Caucasus, and the Volga region.

The majority of Muslims in Western Europe immigrated after World War II. The postwar economic reconstruction and economic boom of the 1950s, 1960s, and early 1970s could absorb considerably more labor than was domestically available. The host countries later allowed the workers to be joined by family members (Münz 2003; Peach 2006; Tribalat 2004). Most of the immigrants were young at the time of arrival and had their children in the countries of immigration¹ (Andersson 2004; Toulemon 2006). The 1990s witnessed an influx of Muslims fleeing persecution, interspersed with migrants seeking economic betterment (Münz 2003; Peach 2006).

In the first wave, late 1940s–1970s, the two principal streams of immigration to Western Europe were from (a) countries of the erstwhile colonial empires, mainly the Indian sub-continent, the Caribbean, Indonesia, and Northern Africa; and (b) Southern Europe, the former Federal Republic of Yugoslavia, and Turkey. Immigrants to France came mostly from North Africa—Algeria, Morocco, and Tunisia—and also from Turkey. Most British

Muslims originated in Pakistan and India, with smaller numbers from Bangladesh, Turkey, and Arab and North African countries. Most Muslims in Germany came originally from Turkey and the former Yugoslavia. Because much of this immigration took place during the 1950s, 1960s, and early 1970s, large proportions of present-day Muslims are second- and third-generation descendants. For instance, according to the 2001 census just under half (46 percent) of the Muslim population in the United Kingdom was British-born (Peach 2006).

Many refugees and asylum seekers of the 1990s came from Bosnia and Kosovo (as a result of the Balkan wars), as well as from Afghanistan, Somalia, Iran, Iraq, and Turkey.

Differences between Muslim and non-Muslim fertility

Methodological issues

Three types of data permit the analysis of fertility differentials by religious affiliation; however, very often one has to rely on crude estimates. Furthermore, in each case the data are not as detailed as needed for a thorough analysis over time and by cohort and age of mother.

Few European countries collect data on religious affiliation in population censuses and vital registration systems (Brown 2000). It is even more exceptional to find fertility data by religious denomination. Where these data are at hand, they provide relatively reliable indicators of religious fertility differentials and their evolution over time.

Many countries collect data on immigrants, classified either by country of origin, which is similar to foreign-born, or by nationality or citizenship. To be of foreign nationality or foreign citizenship is substantively similar, yet different countries use different terminology. The distinction between foreign-born immigrants and those with foreign citizenship or nationality is that the former contain all immigrants from other countries, whereas the group of foreign nationals or foreign citizens does not contain persons who have been naturalized. Because naturalization laws and practices differ between countries, the comparability of groups of immigrants between countries may be compromised, but it is not possible to determine the extent of the bias. In practically all countries the descendants of immigrants tend to be included in the estimates of immigrants.

Various measures of fertility are available: children ever born, total period fertility rates (TFR), and completed cohort fertility. Data on children ever born, based on population censuses, are of reasonably good quality. TFRs are calculated and estimated in different ways, some more reliable than others.

We make the simplified assumption that all women who immigrated from countries with overwhelmingly Muslim populations are of the Islamic faith. Throughout the article the terms “Muslim” and “Islam” are used interchangeably to denote adherence to the Islamic faith. In the tables we rely on whatever designation was used in the national source.

Countries with data on religious affiliation

Countries that collected data by religious denomination are shown in Table 2. According to data derived from the 2001 Austrian census, Muslim women had a total fertility rate of 2.3 births per woman, compared to a TFR of 1.3 for Roman Catholic women, who comprised 75 percent of the female population. In 2001 Muslim women had an average of one child more than women of other religions. This differential was smaller, however, than ten or 20 years earlier. While the share of Muslim women in Austria increased from 0.9 to 4.6 percent between 1981 and 2001, their TFR declined from 3.1 to 2.3 and the absolute TFR differential between Muslim and other women also declined. The proportionate differences between TFRs of women of different religions remained stable.

The other countries in Table 2 have data either on children ever born or on completed cohort fertility. In Bulgaria, Muslim women, who comprised 12 percent of the female population, had an average of 1.6 children ever born, compared to 1.3 children ever born to Eastern Orthodox women, who constituted 83 percent of the population. Data permit estimates of completed fertility for certain cohorts. Orthodox women born around 1940, 1950, and 1960 had stable completed fertility around 1.8 births per woman. Completed fertility of Muslim women was higher. In the 1937–41 cohort their fertility

TABLE 2 Total fertility rate, children ever born, and completed fertility, by religion: Austria, Bulgaria, Croatia, Slovenia, and Ukraine, 1981 to 2003

Austria							Difference between Islam and other religions		
Religion	1981		1991		2001		1981	1991	2001
	TFR	Share of total	TFR	Share of total	TFR	Share of total			
Roman Catholic	1.70	85.7	1.52	78.8	1.32	74.5	1.39	1.25	1.02
Protestant	1.51	5.8	1.37	5.1	1.21	4.5	1.58	1.40	1.13
Islam	3.09	0.9	2.77	1.9	2.34	4.6			
Other religion	1.70	3.4	1.61	7.1	1.44	6.2	1.39	1.16	0.90
No religion	1.12	4.2	1.04	7.1	0.86	10.2	1.97	1.73	1.48
Total	1.67	100.0	1.51	100.0	1.33	100.0			

SOURCE: Goujon et al. 2006.

\continued

TABLE 2 (continued)**Bulgaria—2001 census**

Religion	Age group	Children ever born (women 15+)	Share of total	Difference between Muslims and Orthodox
Orthodox	All	1.26	83.2	0.31
Muslim	All	1.57	11.9	
Orthodox	40–44	1.77	82.4	0.53
	50–54	1.82	86.7	0.74
	60–64	1.76	87.6	1.09
Muslim	40–44	2.30	12.5	
	50–54	2.56	9.5	
	60–64	2.85	9.3	

SOURCE: National Statistical Institute 2003.

Croatia—2001 census

Religion	Children ever born (women 15+)	Share of total	Difference between Muslims and other religions
Roman Catholic	1.63	87.6	0.12
Orthodox	1.36	5.0	0.39
Muslim	1.75	1.1	

SOURCE: Central Bureau of Statistics 2002.

Slovenia—Completed fertility of birth cohorts, 2002 population census

Birth cohort	Islamic	Catholic	Difference
1927–31	4.68	2.18	2.50
1932–36	3.89	2.17	1.72
1937–41	2.96	2.12	0.84
1942–46	2.76	2.07	0.69
1947–51	2.59	2.04	0.55
1952–56	2.28	1.97	0.31
1957–61	2.15	1.95	0.20
1962–66	2.04	1.85	0.19

SOURCE: Šircelj 2006.

Ukraine—Ukrainian Longitudinal Monitoring Survey, 2003

Religion	Children ever born (women 15+)	Share of total	Difference between Muslims and other religions
Orthodox	1.51	68.6	0.26
Catholic	1.61	9.6	0.16
Protestant	1.69	1.2	0.08
Islam	1.77	0.6	

SOURCE: Kyiv International Institute of Sociology 2003.

was 2.9 births per woman, a difference of 1.1 births. Unlike the Orthodox, Muslim cohort fertility was declining and the differential was narrowing; in the 1957–61 cohort Muslim women had only 0.5 births more than Orthodox women.

According to the 2001 census in Croatia, Muslim women (about 1 percent of all women) had 1.8 children ever born compared to 1.6 for Roman Catholic women, who belonged to the dominant religion.

In Slovenia, Muslim women comprised about 2.4 percent of the female population, with completed fertility of the cohorts born in the late 1950s and early 1960s estimated at 2.0–2.2 births per woman. Completed fertility of Roman Catholics, the principal religion, was estimated at 1.9–2.0 births per woman for the same cohorts. The fertility of Catholic women had been stable from one generation to the next. Among women born around 1930, Catholic completed fertility was 2.2 births per woman, moderately declining to slightly below 2.0 for the cohorts of the 1950s and early 1960s. Muslim women of the younger cohorts of the early 1960s had significantly lower fertility than their mothers. The Muslim cohort born around 1930 had completed fertility of 4.7 births compared to about 2.1 births per woman of the 1960s cohorts.

In Ukraine in 2003, the population of Islamic faith was less than one percent of the total, and the number of children ever born (1.8) was slightly higher than for women of other religions.

Countries with data on immigrants by country of origin or on foreign-born immigrants

Table 3 contains countries with data on immigrants with known countries of origin or with data on foreign-born immigrants. Most female immigrants in France, presumably of Islamic faith, came from North Africa, mainly from Algeria, Morocco, and Tunisia as well as from Turkey. Their TFRs in the 1990s were higher than the TFR of native French women by 0.9 to 1.5 births per woman.²

In the Netherlands in 2005, the TFR of immigrant women born in Morocco was 2.9 births per woman and that of women born in Turkey was 1.9 births, compared to 1.7 among native Dutch women. Fertility of women born in Morocco and in Turkey declined steeply over the past 15 years, whereas the TFRs of the native Dutch changed only moderately. Fertility of Muslim women in 2005 continued to exceed that of Dutch women, but the differential had narrowed. For women of Turkish origin the differential had almost disappeared: it declined from 1.6 births per woman in 1990 to 0.2 in 2005.

Muslim women in Norway came from a large number of countries and together amounted to about 2.5 percent of the female population. Their ferti-

TABLE 3 Total fertility rate, by country of origin: France, Netherlands, Norway, and England and Wales, 1971 to 2005

France					
Period	TFR of women born in				
	France	Algeria	Morocco	Tunisia	Turkey
1991–98	1.70	2.57	2.97	2.90	3.21
1991–98	Fertility difference between French and immigrants				
		0.87	1.27	1.20	1.51

SOURCE: Toulemon 2004.

Netherlands

Year	TFR by country of birth			Difference between natives and foreign-born	
	Netherlands	Morocco	Turkey	Morocco	Turkey
1990	1.55	4.90	3.15	3.35	1.60
1995	1.47	3.37	2.46	1.90	0.99
2000	1.65	3.22	2.18	1.57	0.53
2005	1.68	2.87	1.88	1.19	0.20

SOURCE: Statistics Netherlands 2006.

Norway

Period	TFR of women born in							Bosnia and Herzegovina
	Norway	Somalia	Iraq	Morocco	Pakistan	Turkey	Iran	
1994–95	1.8	5.5	4.0	3.8	3.6	2.8	1.9	2.2
1997–98	1.8	5.2	4.8	3.8	3.6	3.1	1.9	1.6
1994–95	Fertility difference between Norwegians and immigrants							
	—	3.7	2.2	2.0	1.8	1.0	0.1	0.4
1997–98	—	3.4	3.0	2.0	1.8	1.3	0.1	–0.2

SOURCE: Byberg 2002.

England and Wales

Year	TFR by country of birth			Difference between natives and foreign-born	
	England and Wales	India	Pakistan and Bangladesh	India	Pakistan and Bangladesh
1971	2.30	4.30	9.30	2.00	7.00
1981	1.70	3.10	6.50	1.40	4.80
1991	1.80	2.60	5.00	0.80	3.20
1996	1.67	2.21	4.90	0.54	3.23

SOURCE: Coleman et al. 2002.

ity differed significantly by country of birth. In the period 1997–98 the TFRs ranged from 1.6 births per woman born in Bosnia and Herzegovina to 5.2 for Somalia-born women. For the majority of Muslim women, fertility was considerably higher than that of native Norwegian women.

The England and Wales panel in Table 3 lists foreign-born women from India and from Pakistan and Bangladesh, with only the latter group assumed to be of the Islamic faith.³ The TFR of Islamic women from Pakistan and Bangladesh in 1996 was 4.9 births, compared to 1.7 among native-born women, a difference of 3.2 births. Women born in India had a TFR of 2.2, which was higher by 0.5 births than that of native-born women. Among both groups of foreign-born women, fertility had declined considerably between 1971 and 1996 and thus the differentials also became smaller. Nonetheless, even in 1996 the fertility of Pakistani and Bangladeshi women was roughly three times higher than that of native-born women.

Countries with data on foreign citizenship or foreign nationality

Table 4 provides an overview of fertility differentials for countries that register immigrants by citizenship or foreign nationality. About 3.5 percent of the Belgian population was of the Islamic faith early in the twenty-first century. Most of the immigrants came from Turkey and Morocco. In 1994 their fertility was more than twice that of women of Belgian nationality. The usual pattern of immigrants' declining fertility holds. The TFR differential declined from 3.4 to 1.8 births per woman between 1981 and 1994 for women of Turkish nationality, and from 4.2 to 2.4 for Moroccan nationals.

In Germany, Turkish immigrants constitute a large proportion of foreign citizens. Their TFR declined from 4.4 births per woman in 1970 to 2.4 in 1996. The differential thus fell from 2.4 to 1.0 birth per woman.

Nationals of the former Yugoslavia formed a sizable proportion of immigrants in Switzerland,⁴ but it is questionable what proportion of them were of the Islamic faith. This is the single group of immigrants whose fertility has not followed the usual pattern of decline over time. On the other hand, Turkish nationals in Switzerland fit the usual pattern of decline. Their TFR fell from 3.4 births per woman in 1981 to 1.9 in 1997. This was 0.6 births above the TFR of Swiss nationals.

Early in the twenty-first century Italy still had a relatively modest proportion of Muslim citizens, estimated at 1.4 percent of the total population. They came mainly from Northern Africa and Albania, and their TFRs were between double and triple that of Italian citizens.

Factors determining levels of Muslim fertility in Europe

TABLE 4 Total fertility rate, by nationality or citizenship: Belgium, West Germany, Switzerland, and Italy, 1970 to 1997

Belgium					
Year	TFR by nationality			Difference between natives and foreign-born	
	Belgian	Turkish	Moroccan	Turks	Moroccans
1981	1.57	4.95	5.72	3.38	4.15
1991	1.60	3.50	4.17	1.90	2.57
1994	1.50	3.30	3.91	1.80	2.41

SOURCE: Poulain and Perrin 2002.

West Germany

Year	TFR by citizenship		Difference between natives and foreign-born
	German	Turkish	
1970	2.01	4.40	2.39
1980	1.44	3.60	2.16
1985	1.28	2.53	1.25
1996	1.39	2.40	1.01

SOURCE: Mammey and Schwarz 2002.

Switzerland

Year	TFR by nationality			Difference between natives and foreign born	
	Swiss	Former Yugoslavia	Turkish	Former Yugoslavia	Turkish
1981	1.52	—	3.36	—	1.84
1983	1.51	2.08	3.04	0.57	1.53
1990	1.55	2.92	2.76	1.37	1.21
1997	1.34	2.41	1.91	1.07	0.57

SOURCE: Wanner 2002.

Italy

Year	TFR by citizenship				
	Italy	Morocco	Albania	Tunisia	Egypt
1999	1.26	3.40	2.60	3.30	3.40
Fertility difference between Italians and immigrants					
1999	—	2.14	1.34	2.04	2.14

SOURCE: National Institute of Statistics 2002.

In a recent paper (Frejka and Westoff 2007), the authors, quoting Kertzer, (2006: 261) stated:

What matters is not only the denomination or even subdenomination, but also time and place. "To be serious about investigating the relationship between religion and fertility means having to deal with these complexities, and so to deal with shifting social, cultural, and political relationships." That is the essence of modern research on religion and fertility ushered in by Goldscheider (1971).

These circumstances and relationships definitely apply in the present context. The fertility differentials and trends described above reflect not only norms and beliefs of the Islamic faith, but also the social conditions of the Muslim populations in individual countries and the degree to which Muslims are assimilating over time.

In many respects these populations live in less favorable conditions than other groups, and their incomes and education levels are below average. In Western Europe most of the immigrants from the major streams in the 1950s to early 1970s were poor, with parents of rural origin and limited education, and they came to fill openings in the lowest rungs of the labor market. Many in the second generation fared better and assimilated, but others remained underprivileged. Based on the analysis of the 2001 census in Britain, Peach concluded that "the Muslim population, taken as a whole, is poor, badly housed, with low educational qualifications, suffers high levels of male unemployment and has a very low female participation rate in the labour market" (2006: 637). Tribalat, who studied employment conditions of the French population of Maghreb origin, observed that "difficulties in entering and remaining in the labour market are a major obstacle for persons of Algerian origin.... These difficulties, remarkably persistent with age, are slightly less acute for men originating from other Maghreb countries (Tunisia, Morocco)" (2004: 77).

Given its values regarding gender, sexuality, family life, and fertility regulation, religion plays a significant role in determining levels of fertility. But so do many other factors, including the institutional setting, the nature of the economic system, attitudinal changes, and rates of unplanned pregnancies and births related to poverty, functional illiteracy, and characteristics of the health and reproductive health care delivery system (Frejka 2004). Thus our findings reflect a wide variety of factors in addition to religion.

—Fertility of Muslims in practically all the countries with available data is higher than that of members of the dominant religion. Fertility of immigrants from Muslim countries is higher than that of the native European population. In the most recent data the difference in some cases is only around 10 percent, as in Croatia in the 2001 census, and in the Netherlands in 2005 among women born in Turkey. On the high side, in Norway fertility of women born in Somalia was 2.9 times higher than that of native women;

similarly in England and Wales fertility of women born in Pakistan and Bangladesh was 2.9 times that of native women.

—The effect of higher fertility of Muslim women on overall national fertility tends to be relatively small, because the proportions of Muslim women in most countries are small.

—The fertility of Muslim women is declining in all countries for which data are available. With the passage of time Muslim fertility moves closer to the fertility of the majority of the population in the respective countries.

—Where immigrants originate from a number of Muslim countries there is a range of fertility levels. In other words, the fertility of Muslim women tends to be heterogeneous. At the same time, women of the same country of origin tend to have similar levels of fertility in different countries of destination. For instance, Turkish women in various countries (France, Netherlands, Norway, Belgium, and Switzerland) in the 1990s all had a TFR around 3 births per woman.

The answer to our first question of how much difference there is between Muslim and non-Muslim fertility in Europe (in those countries where such information is available) is that Muslim fertility is higher than that of the rest of the population, especially where the influx is from the least developed countries, but that the difference is declining over time.

The influence of religiousness on fertility

We now consider whether Muslims in Europe are more religious than the numerically dominant non-Muslim populations and whether this is the primary source of their higher fertility. The data to answer this question, which are inadequate in various ways, are based on different country surveys, particularly the European Values Study. Because of the small numbers of Muslims in the European Values Study, we have combined the latest three surveys conducted between 1990 and 2000, which yield a total of 477 Muslim women aged 18–44 living in Europe (excluding Albania). How representative they are of Muslim women living in Europe is unknown. Most of those included in the surveys live in Macedonia, Bosnia, Bulgaria, Russia, and Belgium, with smaller numbers in Britain, France, Germany (where most European Muslims live) as well as in several other Western countries. This is a serious problem, although the samples of 280 Muslim women in the European Social Surveys of 2002 and 2004 seem more representative. Albania, which included 404 Muslim women in the combined EVS surveys, is treated separately because the country is predominantly Muslim, in contrast to the minority status of Muslims in the rest of Europe.

Islam and birth control

There is no recognized central authority in Islam that corresponds to the Vatican for the Catholic Church. Pluralism seems to be the key. With regard to contraception, the most appropriate generalization is that it is permissible though not typically promoted. But even this conservative position is being relaxed (Roudi-Fahimi 2004). In Pakistan, the Indo-Asian News Service recently reported that mosques “will soon distribute contraceptives and literature to spread awareness about the importance of family planning and safe sex” (18 December 2006). Some 22,000 clerics “will be appointed to spread the message of the benefits of a small family” according to the federal population planning minister. This approach is said to be borrowed from Bangladesh, which for decades has promoted aggressive family planning policies. Contraceptive practice is widespread in many Muslim countries, and fertility has declined substantially in Indonesia, Egypt, Bangladesh, Iran, and several North African countries (Eltigani 2005). The large majority of Muslim countries support provision of family planning services.

One review of Muslim reproductive behavior (Karim 1997) concluded: “There seems to be no typical pattern of reproductive behavior which could be described as ‘Islamic’. Islam as such seems to be neither a hindrance nor a stimulating factor in fertility decline at the global level.” A more recent review (Sundquist 2007) enumerates many examples of increasing support by Muslim religious leaders for family planning and evidence that such support is having the desired effect. A similar story is told in a recent book-length treatment of the subject (Jones and Karim 2005). And as Chamie concluded in his study of Lebanese fertility, it is erroneous to generalize “from the official doctrines and theology of a religion to the fertility behavior of its members” (Chamie 1981: 79).

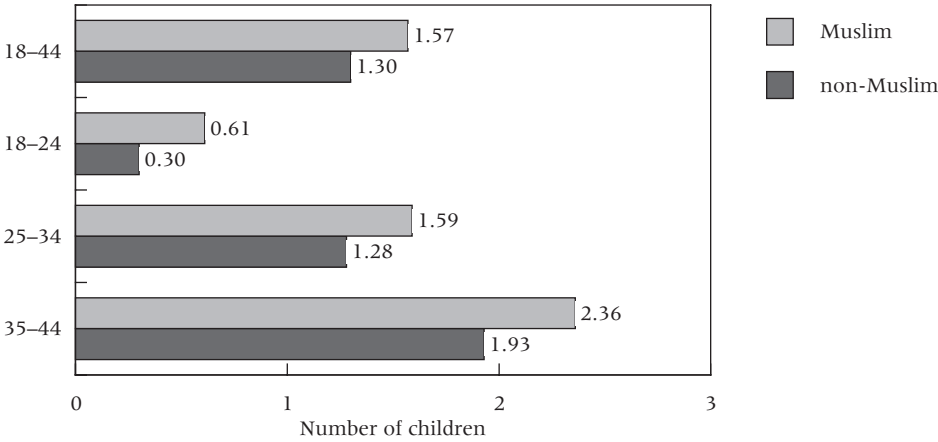
An important dimension of Islam is the strong emphasis on family, which can have pronatalist implications. Traditional values still prevail and are reflected in the status of women. But all of this is in a state of flux with modernization, increasing education, and secularization.

Religion and fertility

Based on data from the European Values Study described above, the average number of children ever born to Muslim women aged 18–44 in Europe is slightly higher, at 1.6 births, than for non-Muslim women, 1.3 (see Figure 1). This difference is consistent at different ages. Toward the end of the reproductive age span, at ages 35–44, Muslims have had 2.4 births compared to 1.9 for other women.

Muslim women aged 18–44 in Europe have a higher proportion currently married—65 percent—than the European average of 57 percent. The

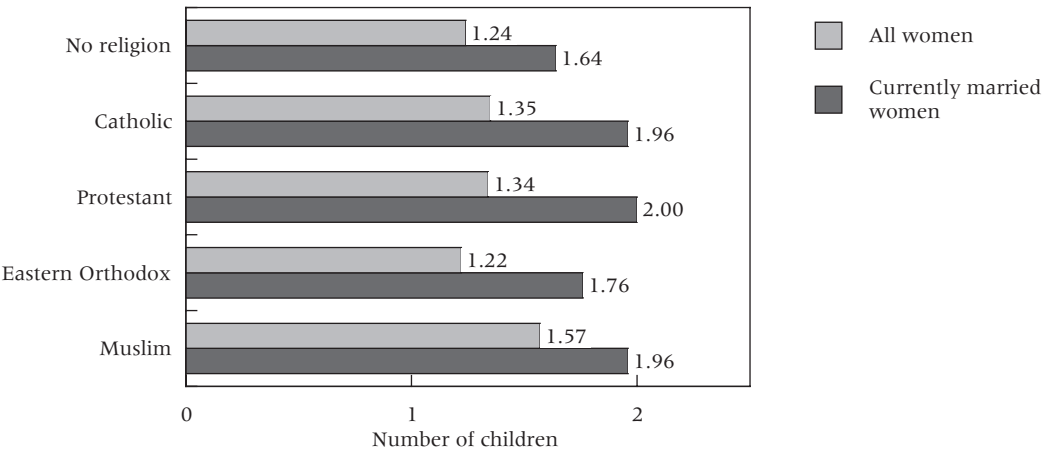
FIGURE 1 Mean number of children ever born to Muslim and non-Muslim women in Europe by age



SOURCE: Combined samples of the European Values Study, 1990, 1995-97, 1999-2000.

differences in fertility by religion are shown in Figure 2 for all women and for currently married women. Although fertility for all women is highest for Muslims, the fertility of married Muslims is the same as that of married Catholics and Protestants. Among married women aged 35-44 Muslims have had 2.3 births, Catholics 2.2, and Protestants 2.3 (not shown). Differences in marital behavior are important in understanding higher Muslim fertility.

FIGURE 2 Mean number of children ever born to all women aged 18-44 and to currently married women by religion



SOURCE: Combined samples of the European Values Study, 1990, 1995-97, 1999-2000.

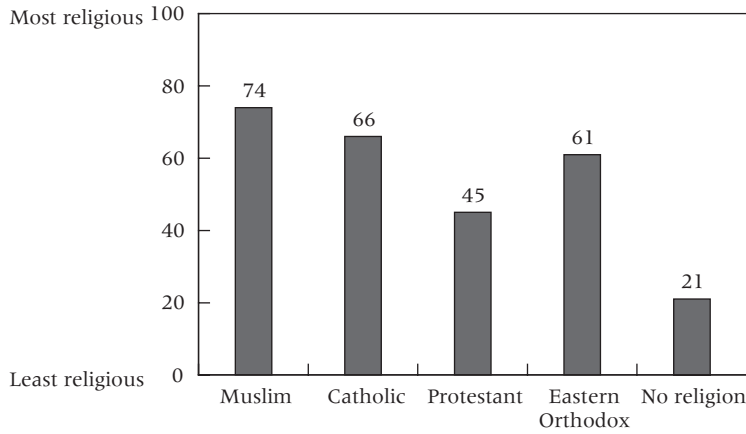
The fertility survey data summarized above show Muslim fertility to be significantly higher than that of non-Muslims, but the differences are less than recorded in country-by-country statistical sources discussed in the first section of this analysis. There are many possible explanations for this, including different kinds of data identifying Muslims, different countries, and different time periods. As noted above, the European Values Study data include a relatively small number of Muslim women, and Western European countries are under-represented. Needed for a fuller analysis are data on migration history that would control for length of residence. An interesting observation by Toulemon (2007) is that immigrant women from Muslim countries in France have high fertility, 2.5 compared with 1.65 for French-born women, but that immigrant women are much more likely to give birth during the first two years of their residence in France than later, apparently waiting to conceive until they arrive. Adjusting lifetime fertility rates for this tempo effect suggests that "immigrant fertility is about 2.2, not much above average. Immigrants are not pushing up the birth rate as much as they seem to be" (*The Economist*, 16 June 2007, p. 32). Similar findings are reported for Sweden (Andersson 2004): "Most immigrant groups tend to display higher levels of childbearing shortly after immigration" (p. 747), but immigrants' fertility behavior rapidly adapts to that of the native population, suggesting that the fertility and population impact of immigration "might be less important than is sometimes assumed" (p. 772).

The extent to which Muslim fertility in Europe exceeds that of non-Muslims is uncertain. The difference is probably less than assumed in the press and by some other observers. Exaggerations of the difference—such as: "Muslims living on the continent are having three times as many children as are their white, European neighbors" (Masci 2005)—are seen frequently in discussions of Muslim migration to Europe. Only in England and Wales has this large a difference been evident (Table 3). We know much more about the fertility of Muslims in their own countries: it is highly varied and has been declining rapidly in recent decades in many areas. The higher fertility of Muslims is probably supported by their strong family values, although the two do not go hand in hand as the Italian case clearly indicates (Livi-Bacci 2001). The subordinate status of women in many Muslim societies also seems to be relevant to higher fertility. So, too, is the possibility of their greater religiousness.

Comparative religiousness

On average, Muslim women are more religious than women of other religions in Europe. Figure 3 indicates women's religiousness according to a summary measure that combines their responses in the European Values Study to 12 questions concerning beliefs. Muslims show the highest proportions who think religion is important; feel that they are religious; believe in God; find comfort in religion; believe in heaven and in hell, in the devil, in sin, in a

FIGURE 3 Mean score of European women aged 15–44 according to a summary measure indicating level of religious belief



NOTE: The 12 questions on which the measure is based are given in the text.

SOURCE: Combined samples of the European Values Study, 1990, 1995–97, 1999–2000.

soul (the same as for Catholics on all counts); pray often outside of religious services; and believe in the importance of God. The only exceptions are that a larger percentage of Catholics report being raised religious and attending services at least once a month. (In some countries, Muslim women are not allowed to attend mosques.) These findings are similar to those in the European Social Surveys of 2002 and 2004, which add frequency of prayer and a self-rating scale of religious self-image. Again Muslim women are found to be the most religious group.

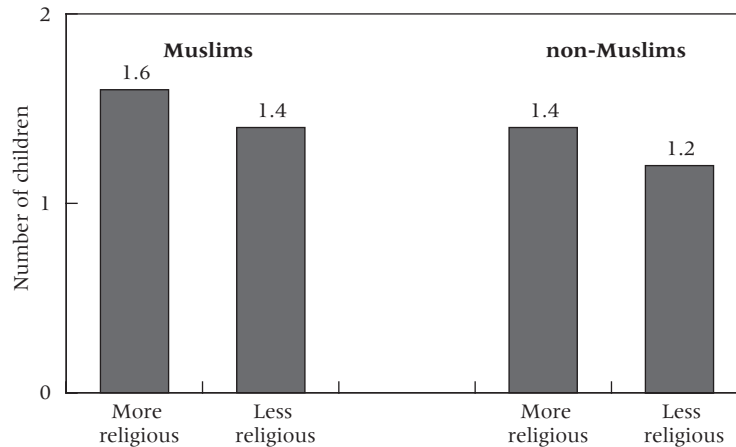
Data (not shown) from the EVS indicate that Muslim men, though less religious than Muslim women, are more religious than European men of other religions.

Religiousness and fertility

The mean number of children ever born for women aged 18–44 is tabulated by an index of religiousness in Figure 4. The individual items are: sees self as religious, believes in God, believes in heaven, believes in sin, and receives comfort from religion. The five items were added in a summary index and dichotomized as close to the median as possible. By each measure, the more religious women have more children than the less religious, a pattern that prevails for both Muslims and non-Muslims. The fertility of Muslim women is slightly higher than for non-Muslims both for the more and for the less religious women.

Similar analyses were conducted based on the more recent European Social Surveys of 2002 and 2004, which, when combined, include 280 Muslim women out of a total of 19,000 women aged 18–44. Muslims in Britain,

FIGURE 4 Mean number of children ever born to women aged 18–44 for Muslims and non-Muslims according to a summary measure of religious beliefs



SOURCE: Combined samples of the European Values Study, 1990, 1995–97, 1999–2000.

France, Belgium, and the Netherlands were more highly represented in the ESS than in the EVS. The main problem with the ESS, however, is that there was no direct question on the number of children ever born. A crude substitute was derived from the household roster and from a question about children who no longer lived in the household, but this measure seems to underestimate the number of children ever born (based on a comparison with the EVS data).

Nonetheless, the ESS analysis yields similar results to those reported above. Muslim fertility is about 15 percent higher than fertility of non-Muslims, Muslim women are more religious than non-Muslims, and fertility is slightly higher among the more religious Muslims than among the less religious.

Family values

In a recent essay on religion, family, and fertility focused on high Muslim fertility in Israel, Calvin Goldscheider stresses the importance of strong family values within that culture rather than the role of fatalism or formal religious dogma. He states: “Values that emphasize the subordinate role of women within households and gender hierarchies appear to be critical in sustaining high fertility levels” (Goldscheider 2006: 46). He reasserts this proposition in his conclusions: “Therefore, the search for understanding why some religious groups have distinctive fertility patterns, and why religiosity is a major determinant of fertility levels, should not begin with a review of the theological pronouncements of religious institutions about fertility and family size, or

about contraception and birth control, but rather about family values and gender roles" (p. 56). Obermeyer (1992) develops a similar point, though she emphasizes the considerable diversity in gender roles in Muslim countries.

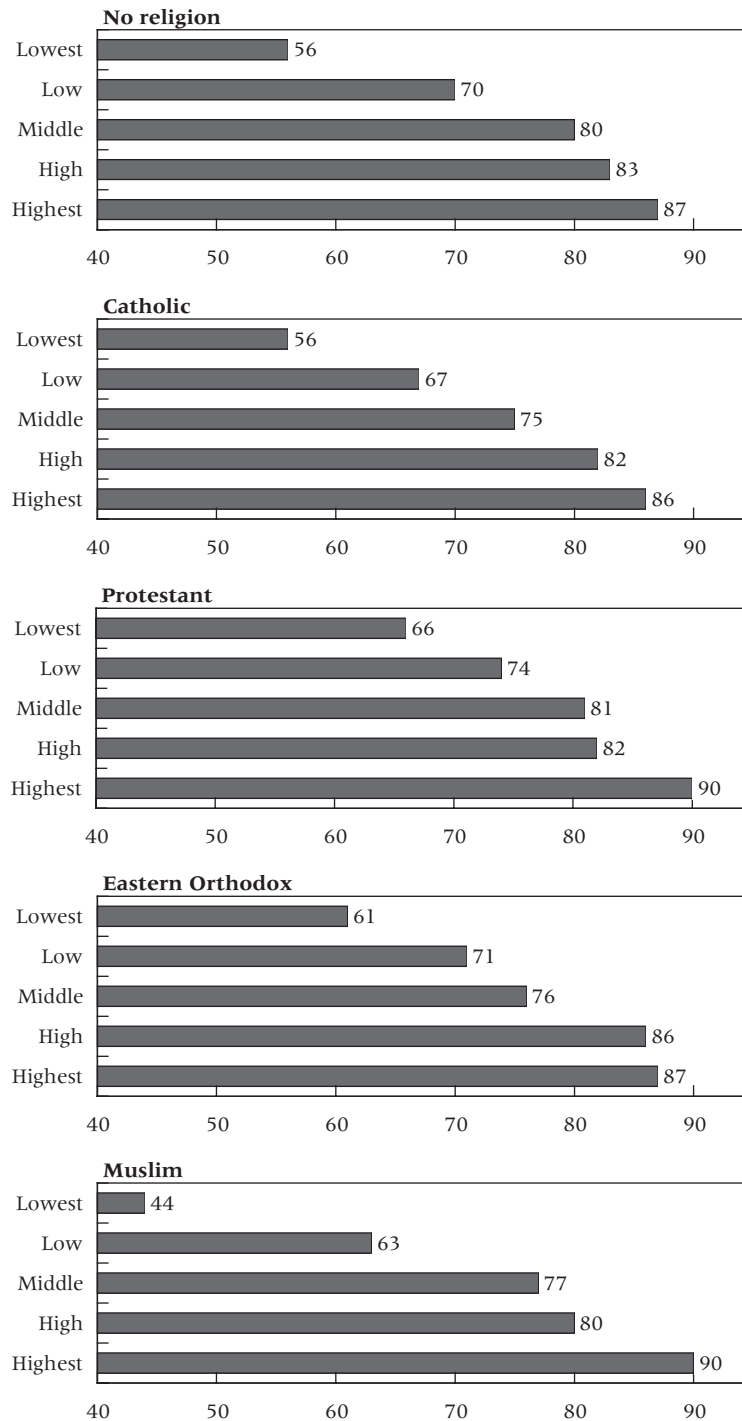
There are data in the European Values Study that bear on this subject, including questions about family values and gender roles. A comparison of the distributions of responses to such questions by religious denomination shows that Muslim women aged 18–44 consistently espouse traditional attitudes. Although some ambiguity may be associated with any single indicator, Muslims are at the most conservative extreme on all of the items. Muslim women are more likely than women of other religions to:

- Disapprove of women as single parents
- Prefer to have a boy if there was only one child
- Feel that a housewife's role is just as fulfilling as paid work
- Feel that men have more of a right to a job if jobs are scarce
- Feel that the family is a very important institution
- Think that marriage is not an outdated institution
- Feel that a woman has to have children to be fulfilled

We have constructed a summary index of these seven items (equally weighted) condensed into a distribution of five points. It is difficult to validate this index but it is positively associated with having ever been married as seen in Figure 5. Figure 6 shows the number of children ever born by the score on this index. Fertility has a strong positive linear association with pro-family values for each of the four religions. With the possible exception of the no religion category, the average number of children ever born is very similar across religions at each level of the index. The family values index is higher for Muslim women than for non-Muslims, however. Forty-two percent of Muslim women are in the highest two categories of the index compared with 8 percent of Protestants, 15 percent of Catholics, 16 percent of women with no religion, and 17 percent of Eastern Orthodox women.

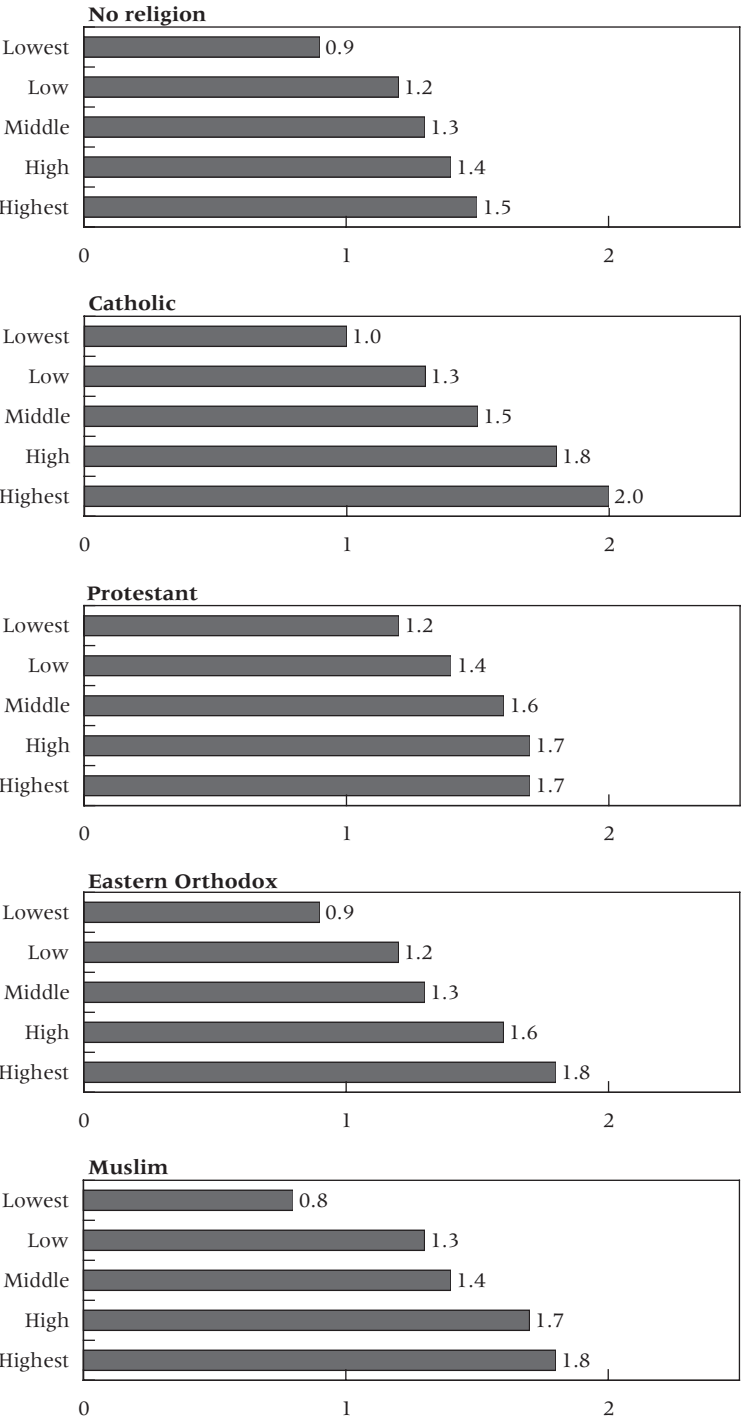
This association of family values with fertility is largely the result of the joint relationship with marriage (Figure 5). The proportion of women ever married is strongly related to family values especially among Muslim women, where it ranges from 44 percent married at the lowest point of the scale to 90 percent at the highest point. This relationship was also examined separately for women 18–29 and 30–44 years of age, but this refinement does not change the pattern. Although strongest for Muslims, this overall association is also clearly present among women of other religions. The consequence is that when restricted to ever-married women, the association between family values and fertility remains but is considerably diminished (not shown). The causal direction of the association between marriage and family values is not clear; it probably operates in both directions. Women with strong values about the importance of the family are more likely to marry, and married women are more likely to develop stronger values about family life.

FIGURE 5 Percent of women aged 18–44 ever married
by the index of family values and religion



SOURCE: Combined samples of the European Values Study 1990, 1995–97, 1999–2000.

FIGURE 6 Mean number of children ever born to women aged 18–44 by the index of family values and religion



SOURCE: Combined samples of the European Values Study 1990, 1995–97, 1999–2000.

Multivariate analysis

We have conducted two complementary multivariate analyses in the form of binomial logit regressions with the dependent variable defined as the dichotomy of women aged 18–44 with 0–1 children ever born versus those with two or more. This criterion was selected because of the importance of replacement-level fertility in the European context.

The first question we addressed is whether the higher fertility of Muslims is a function of such covariates as age, marital status, education, income, religiousness, and family values. The analysis progressively adds these controls to determine whether and how they change the initial uncontrolled odds ratio of having at least two children for each religious denomination. An earlier analysis we carried out included income, which consistently showed no significant association with fertility. Because there is no information on income for 40 percent of the total number of women, the tables exclude that variable. Sample losses also occur in the construction of the religiousness and family values indexes because of incomplete data. The results in Table 5 show the following:

—In the uncontrolled model A, affiliation with any of the four religions increases the odds of having two or more children, compared with the reference category of women with no religion.

TABLE 5 Odds ratios of having two or more children, by religious denomination with various controls

	A	B	C	D	E
No religion	1.00	1.00	1.00	1.00	1.00
Muslims	1.59	1.90	1.77	1.41	NS
Catholics	1.30	1.46	1.23	NS	NS
Protestants	1.50	1.54	1.51	1.31	1.32
Eastern Orthodox	1.14	NS	NS	NS	NS
Controls					
Age		1.35	1.41	1.37	1.37
Age squared		0.99	0.99	0.99	0.99
Ever married		11.67	14.42	15.44	14.81
Years of education			0.90	0.90	0.90
Religiousness ^a				1.07	1.06
Family values ^b					1.14
Number of women	31,998	31,998	23,513	14,794	14,794
Chi squared	12,144	12,250	10,075	6,637	6,671
R ²	0.274	0.277	0.310	0.324	0.326

NOTE: NS = non-significant at 5 percent level.

^aBased on responses to belief in God, in heaven, in sin, and receiving comfort from religion.

^bSee text for description of items in this index.

SOURCE: Combined samples of the European Values Study, 1990, 1995–97, 1999–2000.

—The odds ratios for Muslim women tend to be the highest even with the imposition of successive controls but become non-significant with the addition of both religiousness and family values.

—Women from the Eastern Orthodox religion show the least evidence of a positive association between religious affiliation and fertility.

TABLE 6 Odds ratios of having two or more children, by religious denomination

	Muslims	Catholics	Protestants	Eastern Orthodox	No religion
Religiousness (4-item scale) ^a	1.30	1.09	NS	NS	1.07
Family values (5-item scale) ^b	1.30	1.22	1.30	1.33	1.25
Education	NS	0.85	0.93	0.80	0.91
Age	1.43	1.99	1.74	1.61	1.88
Age squared	0.99	0.99	0.99	0.99	0.99
Number of women	293	5,972	2,967	2,155	3,517
Chi squared	96	2,120	893	664	859
R ²	0.239	0.256	0.217	0.223	0.179

NOTE: NS= non-significant at 5 percent level.

^aBased on responses to belief in God, in heaven, in sin, and receiving comfort from religion.

^bSee text for description of items in this index.

SOURCE: Combined samples of the European Values Study, 1990, 1995–97, 1999–2000

The second analysis focuses on the comparative importance for fertility of religiousness and family values for each religion. We have seen in models D and E in Table 5 that the covariates of religiousness and family values show significant associations with fertility. In Table 6, the association of these variables with fertility is highlighted for each religion. Marital status has been excluded from this analysis because of the ambiguity of its connection with family values. Religiousness is mainly a factor for Muslim women, with more religious Muslims showing a 30 percent greater likelihood of having two or more children. The family values measure shows a similar association with fertility for Muslims but also for women of the other religions. Years of schooling, on the other hand, are consistently negatively associated with fertility for all but Muslim women, among whom it fails to reach a significant level. When education is included without the other controls, it shows a similar association with fertility among Muslims.

Muslim fertility in Albania

Albania differs from the other European countries included in our analysis above in several respects. It is one of the least developed countries in Europe, Muslims are the large majority of the population rather than a minority as in other European countries, and the fertility rate was the highest in Europe

until its rapid decline in recent decades. The most recent TFR estimate (2004) is 1.8.

The fertility of the Muslim population in Albania is similar to that of Catholics, who comprise 11 percent of the country's population (based on the 2002 national survey of reproductive health conducted by the US Centers for Disease Control and Prevention, Institute of Public Health, Albania Ministry of Health, Institute of Statistics 2005). The proportion of women married is higher for Muslims—62 percent versus 56 percent for Catholics—and Muslim marital fertility is slightly lower than that of Catholics. According to the CDC survey, there is little difference in contraceptive practice by religion. Overall, 75 percent of married women use some method but most of this is withdrawal, which partly explains a high abortion rate.

The only measure of religious behavior in the CDC survey, the frequency of attendance at religious services, is not very useful since 57 percent attend only on holidays and 29 percent never attend. This crude distinction shows no association with fertility. In the recent European Values Study that does include data on religiousness, the evidence indicates that Albanian Muslim women are less religious than Muslim women living elsewhere in Europe on virtually every measure of religiousness. As elsewhere, the fertility of the more religious women is higher.

In summary, the analysis of Muslim religiousness and fertility based on surveys including Muslim women living in various European countries reveals the following associations:

- Muslim fertility is slightly higher than non-Muslim fertility;
- Higher proportions of Muslim women are married;
- Muslim women are much more religious;
- Fertility is directly related to religiousness for both Muslims and non-Muslims;
- Muslim women subscribe more to family values than do non-Muslim women;
- The odds of having at least two children are significantly greater for women who are religious and who hold strong family values, with the strongest associations found among Muslim women.

These conclusions need to be qualified both because of the small samples of Muslim women in both the European Values Study and in the European Social Surveys and the questionable survey coverage of the different countries with Muslim populations.

Conclusion

There are at least three noteworthy dimensions of Muslim fertility in Europe that this analysis does not address. It does not consider the potential popula-

tion growth that Muslim migration and higher Muslim fertility imply, and it does not address the volume of Muslim migration to Europe and issues of assimilation. Our narrower objective has been to assess both from national censuses and from survey data, each with shortcomings, the differences between Muslim and non-Muslim fertility and the role that differences in religiousness and in attitudes toward the family and gender roles play in these fertility differentials.

Our general impression from this research is that the differences between Muslim and non-Muslim fertility in Europe will continue to diminish. This assumption is based both on the scattered evidence from census data that shows signs of convergence over time and on the sharp declines in fertility in Muslim countries. How much time full convergence will require is unclear, but it is evident that the transition will vary substantially in different European countries.

Notes

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1 "This higher fertility just after migration is a common feature of migrants' fertility" (Toulemon 2006: 6).

2 The estimates provided by Toulemon (2004) are based on a sophisticated methodology and differ from other estimates, e.g. those of Legros (2003).

3 According to the 2001 census in England and Wales, 92 percent of Pakistanis, 93 percent of Bangladeshis, but only 13 percent

of Indians were Muslims. One can assume that the proportions Muslim were not very different in earlier years (Peach 2006).

4 For most of the second half of the twentieth century, Italians represented the largest proportion of immigrants to Switzerland, with fertility equal to or even lower than that of the native Swiss. The numbers of labor immigrants from Yugoslavia became sizable during the 1980s, followed by even larger numbers in the 1990s, many of whom were fleeing armed conflicts. In 1998 the number of Yugoslavs in Switzerland equaled those of Italians. Each of these two nationalities accounted for about a quarter of all foreigners (Wanner 2002).

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