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Estimating the Global Muslim Population: Size and Distribution of the World's Muslim Population

Brian J. Grim*

Senior Researcher, Director of Cross-National Data
Pew Research Center's Forum on Religion & Public Life
Washington, D.C.

Becky Hsu

Doctoral Candidate
Department of Sociology, Princeton University
Princeton, New Jersey

* bgrim@pewforum.org

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Abstract

Current estimates of the global Muslim population cited in the academic literature range between one billion and nearly two billion. In this article, we describe the most rigorous effort to date to estimate the size of the Muslim population in each country of the world, resulting in a global estimate of 1.57 billion Muslims in 2009, or nearly one in four of the world's 6.8 billion inhabitants. We describe a demographic data quality index that we developed to assess the sources used in our estimate. We discuss the limitations of censuses, surveys, and other data sources, and we argue that the best strategy is to select the strongest data source for estimating the size of the Muslim population for a particular country rather than using the index to create a weighted average. We also present other innovations, including a methodology for combining separate male and female demographic and health survey datasets to arrive at country estimates for religious affiliation.

The field of religious demography is still developing (Johnson and Grim 2011).[1] The creation of the World Religion Database (Johnson and Grim 2008) was the first systematic effort to collect, collate, and analyze sources for international religious demography ranging from censuses and demographic surveys to statistics that are collected and reported by religious groups themselves. As a consequence, many people, including scholars, turn to secondary sources, such as Wikipedia (e.g., http://en.wikipedia.org/wiki/Major_religious_groups) or *The World Factbook* (Central Intelligence Agency 2010), which lack sufficient academic rigor and consistency. For instance, "the CIA Factbook, using thirty-year old census data, inaccurately reported the population of Afghanistan to be millions more than the best estimates from the U.N. population division up until the Factbook was updated in fall, 2009" (Johnson and Grim 2011: 366). In Wikipedia, depending on which page is being considered, the number of Muslims in China could be 20 million or 30 million without discussion of the different estimates.

During the past decade, both the public and scholars have experienced a surge of interest in Muslims around the world. However, scholars have not yet made an estimate of the size of global Muslim population. We seek to address this lack. In this article, we begin by examining existing data sources for the number of Muslims in countries of the world, including a discussion at the start of our demographic data quality index. We then compare our estimate with estimates derived from other sources. Finally, we provide estimates of the Muslim population by region and discuss the implications of our work, including the benefit for future research of using a weighted average of sources for data on religiosity.

ESTIMATING THE NUMBER OF MUSLIMS WORLDWIDE

Before publication of the World Religion Database, there was no single place to go to access multiple census and survey estimates for the religious composition of countries. The World Religion Database collected results from thousands of censuses and surveys into one database, including an analysis of religious affiliation data from Macro International's Demographic and Health Surveys (1998–2008) as well as cross-national general social surveys such as Afrobarometer (2006), the World Values Survey (2006–2008), and the Pew Global Attitudes Project (2007).

Two main difficulties arise in attempting to estimate the number of Muslims in the world. First, most data sources do not include all the countries of the globe, which means that it is necessary to use many sources. Second, the different data sources that are available are incompatible, and some manipulation is required to

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[1]By *religious demography*, we mean the statistical study of the size of religious groups and the change of religious identity within human populations, as well as how these characteristics relate to other social and economic indicators. We see this as a subset of demography, the statistical study of human population characteristics.

make them suitable to be combined. We will describe each of these issues more fully and then explain how we have addressed them.

First, we created an international religious demography data quality index, in which data sources were scored on the basis of four components: geographic representation, response rate, sampling quality, and questionnaire design. The four components added up to one overall score that reflected how reliable each data source was for estimates of a specific country's religious composition.

The first component, geographic representation of the country, is measured with two indicators: the number of provinces surveyed divided by total number of provinces and the percentage of provinces with at least 100 cases.

The second component of the index is the response rate, which denotes the percentage of people who answer the questions out of those who are chosen randomly for the survey. For example, if 100 people are sent a mail survey and 41 of those people return a filled-out survey, the survey has a 41 percent response rate.

Two measures of sampling quality make up the third component of the index: a margin of error (to quantify uncertainty about the survey results), using $M = 1/SQRT(N)$, where N refers to the valid sample size, and whether both males and females are included in the sample. The sample size is the basis of the margin of error, and although we do not consider it independently as a component, we include it in the table because it is more easily understandable to the naked eye. We consider the valid sample size for the Demographic and Health Survey (DHS) to include only the women (even if men were included in the survey) because the sampling design did not sample women and men independently.

The questionnaire design is the fourth component of the index, measuring data quality with reference to aspects of the survey format that facilitate accurate and detailed demographic information. We included two indicators of good religious questionnaire design: the number of religious categories available to respondents, which measures how limited the responses were by set categories (if the survey asks "Are you Muslim, Christian, and Other?," the value is 3), and whether multiple languages were available to respondents (1 = multiple languages available, 0 = only one language available). The multiple languages indicator allows for more accuracy, as it is more likely that the respondent was surveyed using his or her native language (immigrants and expatriates are often significant populations).

In Table 1, we show how the index worked, using Kenya as an example. Several sources were available: the 1999 Kenya census (Central Bureau of Statistics 2002); the 1993, 1998, and 2003 Kenya Demographic and Health Surveys (Central Bureau of Statistics, Ministry of Health, and ORC Macro 2004, National Council for Population and Development, Central Bureau of Statistics, and Macro International 1994, 1999), the 2003 Afrobarometer, and the 2005 Pew Global Attitudes Project survey. The Kenya census scored highest (99), followed by the 2003 DHS (89), 1998 DHS (86), 2003 Afrobarometer (74), 1993 DHS

(71), and 2005 Pew Global Attitudes Project (GAP) (61). For Kenya, as for other countries, the Afrobarometer and Pew GAP tended to have less extensive geographic coverage. Theoretically, one could take the average of all the recent estimates and then weight them by their data quality. However, we soon came across two roadblocks to using this method to assess all data sources.

First, in numerous surveys, such as the World Values Survey, the question about religious affiliation is asked as a two-step question, which gives less religiously committed respondents the option to say initially that they have no affiliation. This reflects a degree of religiosity and not just basic identity. Thus if we were to average in surveys with data that use the general census and the DHS approach of giving people a list to choose from rather than an easy opt-out, it would change the object we are measuring: personal identification with a religion, not level of commitment to the religion. Of course, religiosity is a highly interesting, even important question but one that is best understood through other measures, ranging from frequency of participation to self-described importance of religion.

Second, metadata are often unavailable. For geographic coverage, some data sources (notably general population surveys) give little documentation on which areas are included in the survey; indeed, such surveys are not designed to be representative at the subnational level. Some surveys are done in urban areas only, and in other surveys, it is unclear which provinces are included. Metadata about the second measure of data quality, response rates, are less well reported for many surveys than they are for national censuses and Demographic and Health Surveys. Although we could construct a data quality index using the other measures, we believe that trying to do this without measures of geographic representation would yield misleading scores for the various data sources. This is especially important because religious groups, especially when they are minorities, may be geographically concentrated, as is the case in Kenya, where Muslims are clustered along the coast and near the border with Somalia.

For these two reasons, we did not use the data quality index as a way to weight each source and then average them together for an overall country score. Some researchers have done this with success on polling questions in the United States. For instance, Nate Silver uses a data-averaging technique described in his blog[2] to combine U.S. election polls. This becomes even more problematic in trying to use a weighted method to estimate multiple religious groups from surveys that do not have the same number and categories of religious affiliation.

By this analysis, national censuses score highest for demographic data quality across countries, having the most comprehensive geographic coverage, high response rates, a high number of cases, and the inclusion of both males and females. We therefore generally treat censuses as the source with the best-quality data.

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[2] http://fivethirtyeight.blogs.nytimes.com/methodology.

Table 1: International Religious Demography Data Quality Index

The International Religious Demography Data Quality Index Score indicates the degree that the information given by the source represents each country's religious composition accurately, ranging between 0 (not reliable) and 100 (highly reliable). The overall score is the mean of the four measures: geographic representation, response, sampling, and questionnaire design.

Country: Kenya

		Source					
		Kenya Census 1999	**DHS 2003**	**DHS 1998**	**Afroba-rometer 2003**	**DHS 1993**	**GAP 2005**
Geographic representation	% Provinces covered	100	100	100	88	88	63
	% Provinces with at least 100 cases	100	100	100	1	100	25
	Score	100	100	100	44	94	44
Response	Response rate	98	96	86	60	82	37
	Score	98	96	86	60	82	37
Sampling	Valid sample size	28,485,803	11,773	11,288	2,398	9,876	1,000
	Margin of error	0.0%	0.9%	0.9%	2.0%	1.0%	3.2%
	Male and female	1	1	1	1	0	1
	Score	100	100	100	99	49	98
Questionnaire design	Number of religious categories	30	5	5	25	5	10
	Multiple languages	1	1	1	1	1	1
	Score	100	58	58	92	58	67
Overall score		**99**	**89**	**86**	**74**	**71**	**61**

DHS: Demographic and Health Survey; **GAP**: Pew Global Attitudes Project. **% Provinces covered**: number of provinces surveyed divided by total number of provinces. **Response rate:** percent of those who answer the questions out of those chosen for the survey. **Margin of error:** a number that quantifies uncertainty about the survey results; we use $M = 1/SQRT(N)$. N refers to the valid sample size. **Male and female:** whether both are represented in the data (1 = female and male both represented, 0=only one sex represented). **Number of religious categories:** number of religious categories given to respondents (if the survey asks ''Are Muslim, Christian, or Other?'' the value is 3). **Multiple languages:** whether more than one language was offered for the survey respondents (1 = multiple languages available, 0 = only one language available).

The next best source is the Demographic and Health Surveys because the methodology is clear and the samples are large (usually over 7,000) and nationally representative. However, the quality of DHS data suffers because the focus of the survey is on fertility, so some datasets include only females. Because females and males have different religious patterns, the omission of males from any sample introduces significant bias. Additionally, the DHS surveys include fewer religion categories, so the data groups describe only the major religious groups and do not allow for detailed looks at Muslims where they are a small minority.

Following the two best sources is an array of surveys such as the World Values Survey and Afrobarometer, which vary by country in reliability. Generally, these surveys sample around 1,000 to 2,000 people and are, depending on the country, limited to an urban sample. In all cases in which we use general population surveys, we look for surveys that use a one-step approach, similar to censuses, and carefully check other reports, including the "best estimate" of the World Religion Database, which draws on ethnographic analysis, reports of religious groups, and country-specific scholarly monographs on the religion in the country. However, sometimes in the countries where the smaller surveys were conducted, censuses or DHS already covered religion (with the exception of European countries, where questions about religion are not included in censuses). For countries for which no other data on religion were available, the World Religion Database provides estimates. In the following sections, we provide greater detail about how we acquired data as well as the strengths and weakness of each source.

National Censuses

Questions about religious affiliation from national censuses are the best source for estimating the number of Muslims in a country because censuses generally cover the entire population and are conducted on a fairly regular basis. The chief limitation in using census data is that fewer than half of recent country censuses included a question about religious affiliation. In addition, these surveys are conducted only once every ten years, so the data might not be particularly current. Furthermore, censuses are not easy to use because of the difficulty in acquiring the data, which are dispersed and in various forms. Some census data are housed as archived documents sent by other countries to the U.S. Census Bureau during the past century and must be accessed physically.

We acquired national census data from the Encyclopedia Britannica office in Chicago in May 2007; the U.N. Statistical Division statistical database in May 2007; the archives of the World Christian Database in Boston, Massachusetts, in July 2007; the U.S. Census Bureau headquarters in Suitland, Maryland, in June 2008; and online census agencies of countries as they became available. When possible, pages from the original booklet publications were photographed by

using digital cameras, archived as JPEG files, and then manually entered into computer spreadsheets. Data on religion by province were culled, and province names were matched by geography with current province boundaries.

Outside of the difficulty of acquiring census data on religion, the primary drawback for relying on census data is that approximately half of recent country censuses did not include a question on religious affiliation. Taking the specific case of the European Union, for example, only fourteen of the twenty-seven recent E.U. country censuses included a religious affiliation question that they reported to the U.N. Statistical Division. Figure 1 is a map of broader Europe showing in which countries have questions about religion on their census forms. In Nigeria in 2008, government officials removed the religious affiliation question from the census questionnaire in response to violent and deadly social protests. The tension arose because in Nigeria, which is nearly equally divided between Muslims and Christians, various constituencies believed that the census results would be biased and would show that one or the other religion predominated.

**Figure 1: Countries in Broader Europe with Census Questions
on Religious Affiliation**
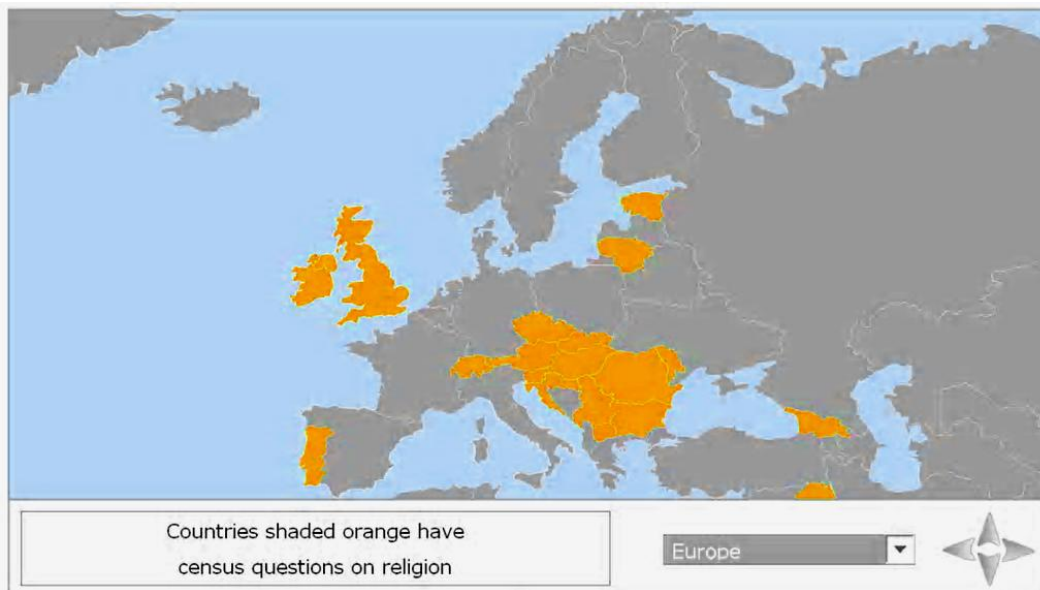
Source: U.N. Statistical Division.

A further drawback comes from the fact that censuses sometimes force respondents to select their religion from a set list of religions. This can result in high-end estimates, in which everyone picks a religion regardless of whether they actually practice the religion. It also has the potential to miss religions that are

considered illegal in that country or are not recognized by the government, such as the Baha'i faith in Egypt. Census questions might not even allow for people to indicate that they are atheists, as atheism is illegal in Indonesia.

Furthermore, census bureaus might not report data on all religious groups, especially smaller groups, despite having the data. For instance, the most recent Mexican census asked whether people were Roman Catholic or something else. The "something else" was an open-ended response that then had to be manually coded. Though people evidently reported being Muslim, the Mexican census bureau did not report them as a category but apparently lumped them into a catch-all "other" category.

Finally, because censuses are conducted by governments, political and social concerns affect and bias the data at times. For example, the 1956 census for Zimbabwe was racially organized and did not include "Africans": "Owing to considerable practical difficulties, mainly an insufficient supply of persons qualified to undertake a satisfactory enumeration and the limited time available to prepare for the Census, no attempt was made to include the total African population in the 1956 enumeration" (Federation of Rhodesia and Nyasaland Census Bureau 1956: 1). Censuses for South Africa in 1951, 1956, and 1960 counted races separately.

In our estimation of the global Muslim population, we used religious affiliation data from eighty-one censuses that had been conducted since 1999, comparing more current sources of data with older census data on religious affiliation for an additional 103 countries as a cross-check.

Demographic and Health Surveys

Where recent census data on religion are not available, we treat the religion data from Macro International's MEASURE Demographic and Health Surveys (DHS)[3] as the second-best source because of the large sample sizes, sampling frame, and representative results at the province level. Though less comprehensive than census data, demographic surveys complete sufficiently high numbers of household interviews to produce a generally accurate demographic profile of the country.

The DHS program has collected nationally representative data that focus mostly on health issues in more than seventy-five countries. Funding sources vary for each country but include the U.S. Agency for International Development, other government agencies, and the U.N. Fund for Population Activities. Macro International provides technical surveys that reach as far back as the 1980s and have continued to be conducted up to the present day. The surveys that include data on religion have been incorporated into the World Religion Database. After being granted permission to access the data, we downloaded survey data in the

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[3] http://www.measuredhs.com.

form of SPSS files from the DHS website

DHS surveys generally include at least 7,000 households, and they are often repeated at multiple time points. Some DHS surveys include women only. In other surveys, separate files for men and women are available. The men who are sampled are often a subset of the women who are sampled (i.e., they are from the same household), so to combine the men and women into one dataset reflecting the overall population of the country as a whole, we made adjustments to the sample weights provided in the dataset. For most of the DHS surveys, both women and men are interviewed, and Macro International provides the data in separate datasets. In countries where only females are interviewed, we used those data to make the overall Muslim population estimate for the country.

For this report, DHS data were acquired and analyzed for more than sixty countries, or nearly two thirds of the countries for which census data are lacking or are older than 1999.

World Religion Database

Estimates from the World Religion Database (Johnson and Grim 2008) were used primarily for countries for which census and survey estimates were out of date, were unavailable, or lacked sufficient coverage. Besides census and survey reports, World Religion Database estimates take into account other sources of information on religious affiliation, including anthropological and ethnographic studies as well as reputable statistical reports from religious groups themselves. The World Religion Database is an outgrowth of the international religious demography project at Boston University's Institute on Culture, Religion and World Affairs (www.WorldReligionDatabase.org), which reconciles the best estimates from Oxford's World Christian Database (Barrett, Kurian, and Johnson 2001) and the World Christian Database (Johnson 2007) with other data sources (census, DHS, and survey data). The original World Christian Database estimates are reasonably correlated with other widely used sources. (For a more thorough evaluation of the dataset, see Hsu et al. 2008.) Reconciling sources is an important exercise because different sources can produce widely different estimates, as will become clear as we compare census data with general population survey data.

Other Sources

Religious affiliation data from other surveys were used for more than twenty of the countries for which a recent census or demographic survey is lacking. However, since general population surveys typically involve only 1,000 to 2,000 respondents, they provide less accurate numbers. This is especially true where the size of the Muslim population is quite small or Muslims live in concentrated

locations that are not oversampled. For our global estimate, we used data from the following surveys: Afrobarometer (2003, 2006), World Values Survey (2009), the Pew Global Attitudes Project (2005), Multiple Indicator Cluster Survey (UNICEF 2007), European Social Survey (2008), InterMedia (2007), Latinobarometro (2007), and the Generations and Gender Surveys (United Nations 2000).

Additionally, we used a country-specific survey for Germany (Muslimisches Leben in Deutschland Survey). Finally, for a few countries (Thailand, Turkey, and the United States), we found more recent and detailed data on Muslims in other sources. For Thailand, we acquired a 2009 estimate from Aree Jampaklay (Institute for Population and Social Research, Mahidol University, Thailand), which adjusts for a probable census undercount of Muslims in southern Thailand. For Turkey, we use the estimate given by Çarkoğlu and Toprak (2006). For the United States, we used data from the report titled "Muslim Americans: Middle Class and Mostly Mainstream," (Pew Research Center 2007).

However, survey data have significant limitations. In Bulgaria, for instance, the estimate for "no religious affiliation" from the 1999 World Values Survey (30.4 percent) is much higher than that from the 2001 census (3.9 percent). It is unlikely that religious "nones" (as used here, the term refers to those who either say that they have no religion or decline to specify a religion) decreased by 26.5 percent in just two years. The large discrepancy is likely due to how the question was presented to respondents in each case. The 2001 census questionnaire offered the six choices shown in Figure 2.[4] The only way for a person to be counted as a religious "none" was either to say "none" in the "Other" category (coded "6" in Figure 2) or to offer no response at all (coded "99" in Figure 2), which was possible because answering this question was voluntary. The census's approach presumes that most people will choose one of the five specific religions listed.

Figure 2: 2001 Bulgarian Census

16. Вероизповедание*
1. Източноправославно
2. Католическо
3. Протестантско
4. Мюсюлманско сунитско
5. Мюсюлманско шиитско
6. Друго ✍ ....
99. Не се самоопределя

(1. Eastern Orthodox, 2. Catholic, 3. Protestant, 4. Sunni Muslim, 5. Shia Muslim, 6. Other _____, 99. Not stated.)

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[4] The census questionnaire is available at http://surveynetwork.org/home/index.php?q=activities/ catalog/surveys/ihsn/100-2001-001.

The World Values Survey, by contrast, did not begin with this presupposition. Instead, it asked a two-part question (European Values Survey 1999). The first part asked whether respondents belonged to a "religious denomination." Only those who answered "yes" were asked "which one," as shown in Figure 3.[5]

Figure 3: 1999 World Values Survey Question
(European Values Survey Edition)

V101 22 ПРИНАДЛЕЖИТЕ ЛИ КЪМ РЕЛИГИОЗНО ВЕРОИЗПОВЕДАНИЕ?

    А   Да   1 ⇨ минете на въпрос 23
    Б   Не   2 ⇨ минете на въпрос 24a

ПОКАЖЕТЕ КАРТА 23

V102 23 КЪМ КОЕ?

    Православни   1
    Мюсюлмани   2
    Католици   3
    Протестанти   4
    Друга (напишете)   5
    Не зная   -1
    Без отговор   -2
    Не се отнася до мен -3

22. Do you belong to a religious denomination (creed)? (1. Yes, 0. No) If yes:
23. Which one? (1. Eastern Orthodox, 2. Muslim, 3. Catholic, 4. Protestant,
5. Other _____, -1. Don't know, -2. No answer, -3, Not applicable).

There are several reasons why this approach will result in a lower estimate of people who are affiliated with religion. First, research has shown that some people who say that they do not belong to a religious group report later in the same survey that they attend worship services, sometimes regularly. This might mean that they attend without being formally affiliated or that they did not understand or accurately answer the affiliation question. The World Values Survey (European Values edition) does note for the 1999 Bulgarian survey that "[t]here were a couple of questions/concepts that caused problems due to translation. These were: q22, q24a. The term 'denomination'—not applicable to Muslims" (European Values Survey 1999: 1). The results of the survey, however, seem to indicate that it was not Muslims, but Christians, who had difficulty with the question about denomination. The World Values Survey turned up a percentage of Muslims (11.0 percent) that was comparable with the percentage shown by the census (12.2), but there was a large difference between the percentage of Christians in the World Values Survey (58.6 percent) and that in the census (83.8 percent). This 25.2

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[5] The World Values Survey questionnaire is available at http://www.wvsevsdb.com/wvs/WVSDocumentation.jsp.

percentage point difference could account for the huge discrepancy seen in the "nones" category, for which the World Values Survey reports a percentage (30.4 percent) that is more than seven time larger than the census's figure (3.9 percent).

COMPATIBILITY OF DATA SOURCES

We considered all sources available to us when choosing the sources for the estimate and generally gave priority to censuses where they were available, followed by DHS and then either the World Religion Database or public opinion surveys. Because the data sources provide different kinds of estimates (censuses provide raw population figures, while surveys provide a percentage of a nationally represented population), we used the percentage of country's Muslim population as the common denominator across data sources. This was generally fairly simple to do with the censuses and smaller surveys. However, although we relied heavily on the DHS in our estimation, using it as a nationally representative source required pooling of the data and adjustments to the sampling weights in the dataset.

In the DHS surveys, women and men are interviewed in sampled households. Typically, individual data from these surveys have sampling weights that incorporate factors for both sampling probability and nonresponse. Data for men and women are available separately. For analyses of pooled data (combined men and women) that retain nationally representative results, neither the weights for females nor the weights for males are appropriate. After discussion with Ruilin Ren at Macro International, we devised a method to adjust sampling weights for analyses of pooled data (male and female). We present a method for estimating adjustments to weights.

The original sample weights (the variable names are V005 in the female dataset and MV005 in the male dataset) are normalized in a sex-specific and country-specific way, formed from the inverse of the product of the sampling probabilities and the response rates. Therefore, to maintain the representativeness of the data after pooling of data for males and females, the weight variables must be denormalized by using the inverse of the normalization procedure (multiplying the weight by the target population divided by the number of completed cases). For pooled data, the weights are as follows:

Female weight (adjusted) = V005 * (total female population age 15–49 years of the country)/(number of women age 15–49 years interviewed)

Male weight (adjusted) = MV005 * (total male population age 15–59 years of the country)/(number of men age 15–59 years interviewed)

To obtain the total female population age 15–49 years of the country, we used estimates of population total by sex from the U.N. Population Division's annual

estimates and for total female populations in the country. Then we used the tables on household population by age, sex, and residence in the final reports issued by the DHS for each survey, which showed percent distribution by five-year age group, according to sex and residence. From the table, we were able to ascertain the percentage of the population between the ages of 15 and 49 years, and we multiplied the total population by this percentage to obtain the desired figure. We did the same to acquire the total male population age 15–59 years of the country.

Thus in our cross-tabulations of religion by province for each country where there are Demographic and Health Surveys, we pooled the data for females and males, adjusted the weights for males and females using the methods described above, and then applied the weights to obtain our estimates.

ESTIMATION METHODOLOGY AND GLOBAL ESTIMATE

The number of Muslims in each of the countries and territories is calculated by multiplying the United Nations' 2009 total population estimate for each country and territory by the single most recent and reliable demographic or social-scientific estimate of the percentage of Muslims in each country's population, based on the conservative assumption that Muslim populations are growing at the same rate as each country's general population. Our estimate is 1.57 billion Muslims.

Estimates of the size of the global Muslim population have ranged from just over a billion to over 1.8 billion. We present various estimates in Table 2 to show where our estimate of 1.57 billion stands in relation to the other estimates.

Table 2: Comparison of Global Muslim Population Estimates

Source	Year	Population (billions)
Gallup[a]	2008	1.3
Number cited by the Vatican[b]	2006	>1.13
World Religion Database[c]	2009	1.52
Pew Forum on Religion and Public Life[d]	2009	1.57
Analysis of *The World Factbook*[e]	2009	1.63
Islamicpopulation.com	2009	1.82

[a] http://www.gallup.com/press/104206/who-speaks-islam.aspx.

[b] http://uk.reuters.com/article/idUKL3068682420080330.

[c] Applying the percentage from the source's 2005 estimate to the world's 2009 population.

[d] http://pewforum.org/docs/?DocID=450.

[e] This is a source that uses numbers from *The World Factbook*; no estimate of the number of Muslims is provided directly by *The World Factbook* (see http://www.factbook.net/muslim_pop.php).

Our findings about regional distribution of the global Muslim population indicate that almost 62 percent of Muslims are found in the Asia-Pacific region, while about 20 percent are in the Middle East and North Africa (see Table 3). However, more than half of the twenty countries and territories in the Middle East and North Africa have populations that are 95 percent Muslim or greater.

Table 3: World Muslim Population by Region

	Estimated 2009 Muslim Population	**Percentage of Population That Is Muslim**	**Percentage of World Muslim Population**
Asia-Pacific	972,537,000	24.1	61.9
Middle East-North Africa	315,322,000	91.2	20.1
Sub-Saharan Africa	240,632,000	30.1	15.3
Europe	38,112,000	5.2	2.4
Americas	4,596,000	0.5	0.3
World total	1,571,198,000	22.9	100.0

Source: Country data and the source used for each country can be found in Pew Forum on Religion and Public Life (2009).

The four countries that have the largest Muslim populations are in Asia. Indonesia has the world's largest Muslim population, which we estimate at 202,867,000, and is where 12.9 percent of the Muslims in the world live. Pakistan has the second-largest Muslim population (estimated at 174,082,000), which is 11.1 percent of the world Muslim population. India is the next (estimated at 160,945,000) and accounts for 10.3 percent of the world Muslim population. Finally, we estimate that Bangladesh has 145,312,000 Muslims, which is 9.3 percent of the world Muslim population.

In the Middle East and North Africa, the largest six countries each contain roughly 2 percent or more of the world's Muslim population. With 5 percent of the world Muslim population, Egypt has an estimated Muslim population of 78,513,000. Algeria, with 34,199,000 Muslims, makes up 2.2 percent of the world Muslim population. Each of four countries makes up slightly less than 2 percent of the world Muslim population: Morocco (31,993,000), Iraq (30,428,000), Sudan (30,121,000), and Saudi Arabia (24,949,000).

Of the fifty countries and territories in sub-Saharan Africa, one country accounts for 5 percent of the world Muslim population, while five countries hover around 1 percent. Nigeria's Muslim population (estimated at 78,056,000) makes up 5 percent of the world's Muslim population. Ethiopia makes up 1.8 percent of

the world's Muslim population, with an estimated 28,063,000 Muslims. Niger's Muslim population (estimated at 15,075,000) comprises 1 percent of the world Muslim population. There are three countries that make up 0.8 percent each of the global Muslim population: Tanzania (estimated at 13,218,000), Mali (estimated at 12,040,000), and Senegal (estimated at 12,028,000).

The fifty countries and territories in Europe combine to make up only 2.4 percent of the global Muslim population. Europe is estimated to contain 38,112,000 Muslims, which is 5.2 percent of the continent's total population. Estimates of the number of Muslims in European countries vary widely because of difficulties in counting immigrant populations. Russia has the largest number of Muslims in Europe (16,482,000), but that is only 1 percent of the world's Muslim population. The other countries in the list of those with the top ten highest Muslim populations in Europe all make up less than 1 percent of the global Muslim population: Germany, France, Albania, Kosovo, the United Kingdom, Bosnia-Herzegovina, the Netherlands, Bulgaria, and the Republic of Macedonia.

Finally, the Americas contain only 0.3 percent of the world's Muslim population, with a regional total of 4,596,000. About 0.5 percent of the population of the Americas is Muslim. The United States has the highest number of Muslims (estimated at 2,454,000) in the Americas, while none of the rest of the countries have Muslim populations larger than 800,000.

Eighty percent of the Muslims in the world live as majorities in their countries, but at the same time, one fifth of the world's Muslim population live as minorities in their own countries. For example, India has the third-highest Muslim population in the world (estimated at 160,945,000), yet only 13.4 percent of the population of India is Muslim. Ethiopia (28,063,000), China (21,667,000), Russia (16,482,000), and Tanzania (13,218,000) also have sizable minority Muslim populations.

DISCUSSION AND CONCLUSION

The global population is close to one quarter Muslim. Because research indicates that religion has an effect on social, political, and economic issues (see Ernst 2006; Grim and Finke 2007, 2011; Hout 2003; Huntington 1996; Robertson and Garrett 1991; Stark and Bainbridge 1985)—in short, religion (or the absence of religion) shapes how people live their lives—it is important to factor religion into any cross-national analysis. For this reason, international data on religion as a whole is extremely important. The number of Muslims in the world is significant to social patterns and political events and should be carefully measured.

Future research on religiosity and religious behaviors (in contrast with religious affiliation) may benefit from using the international religious demography data quality index introduced in this article. This is particularly the case because

the more robust data sources such as censuses and demographic and health surveys do not ask questions on religiosity, and researchers must rely on general social surveys that have smaller sample sizes and varying degrees of coverage.

In this article, we offer an estimate of 1.57 billion Muslims in the world. Our approach was to create the best existing estimate for the global population of Muslims by relying as much as possible on methodologically rigorous and transparent data (national censuses and Demographic and Health Surveys) while also being as comprehensive as possible by including data on every country in the world. As the need to understand global religion and, most notably, the Islamic world increases, so too should the accuracy of measures of religious populations around the world.

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