

Appendix A: Methodology for Overall Christian and Christian Tradition Estimates

This study seeks to provide the most up-to-date and comprehensive demographic estimates of the number of Christians in the 232 countries and territories for which the United Nations Population Division provides general population estimates.¹⁵ To arrive at these estimates, Pew Forum researchers, in collaboration with researchers at the International Institute for Applied Systems Analysis (IIASA) in Laxenburg, Austria, acquired and analyzed about 2,400 sources, including census and demographic reports, general population surveys and other studies - the largest project of its kind to date.

The definition of Christian used in the study is very broad. The intent is sociological rather than theological: In order to have statistics that are comparable across countries, the study attempts to count groups and individuals who *self-identify* as Christians. This includes people who hold beliefs that may be viewed as unorthodox or heretical by other Christians. It also includes Christians who seldom pray or go to church.

The overall number of Christians in each of the 232 countries and territories is calculated by multiplying the United Nations' 2010 population estimate for each country and territory by the most recent and reliable demographic or social-scientific estimate of the percentage of Christians in each country's population. The study assumes that the Christian population in each country is growing at the same rate as the general population. (Pew Forum researchers estimated the Christian share of each country's population while simultaneously estimating the size of all major religious traditions – including those with no particular religious affiliation. These estimates will be published in subsequent Pew Forum reports, along with estimates of the comparative growth rates of Christian and other religious groups' populations.)

This study does not attempt to analyze religious beliefs and practices, such as church attendance.¹⁶

15 The 2010 population estimate for Kosovo is based on the figure from the World Religion Database, which is deducted from the U.N.'s Serbia estimate. Taiwan's population is calculated from the U.N.'s regional total, which includes Taiwan's population but does not directly identify Taiwan. The U.N. provides a total population for Sudan inclusive of South Sudan; the U.N. figure is divided into separate estimates for Sudan and South Sudan based on estimates by the World Religion Database.

16 In other reports, the Pew Forum and the Pew Research Center have used large-scale public opinion surveys to measure the beliefs and practices of many religious groups, including Christians in several countries. See, for example, *Tolerance and Tension: Islam and Christianity in Sub-Saharan Africa*, 2010, <http://pewforum.org/executive-summary-islam-and-christianity-in-sub-Saharan-africa.aspx>, *Spirit and Power: A 10-Country Survey of Pentecostals*, 2006 <http://pewforum.org/Christian/Evangelical-Protestant-Churches/Spirit-and-Power.aspx>.

Sources for overall Christian estimates include national censuses, population registers, demographic and health surveys, and general population surveys and studies. The primary sources used for each country are indicated in Appendix D. Christian estimates for 85 of the 232 countries rely on a census. Estimates for an additional 46 countries are based on large-scale demographic surveys. Together, these 131 countries account for more than three-fourths of the world's Christian population. Estimates for an additional 36 countries are based on general population surveys. Readers should note that general population surveys typically have smaller sample sizes than demographic surveys and are not designed to measure the size of small minority populations. In the remaining 65 countries where census data or reliable surveys were not available, other sources of information, including church membership statistics, provided some indication of the size of Christian populations.

Estimates of how Christians are distributed among Catholic, Protestant, Orthodox and other Christian traditions are based on census and survey data, when available. In cases where censuses and surveys lacked sufficient detail, these estimates also draw on figures provided by the World Religion Database, which take into account other sources of information on religious affiliation, including statistical reports from religious groups themselves.

With all sources, results may have been affected by methodological decisions regarding how the data were collected and managed. Social, cultural or political factors also could have affected how answers to census and survey questions are provided and recorded.

General Procedures for Composition Estimates

At least three researchers worked together to produce each country's religious composition profile. Below is a general discussion of the procedures and considerations used to produce estimates of the religious composition of each country, including estimates of Christian and non-Christian religious groups.

1. Standardizing religion categories

For each country, researchers standardized religion categories in all available censuses and surveys into eight primary categories (Christianity, Islam, Hinduism, Buddhism, Judaism, Traditional/Folk Religion, Other Religion and Unaffiliated) and additional subcategories, including the Christian subcategories of Catholic, Protestant, Orthodox and other Christian. Categories are based on self-identity, not religious behavior or belief.

2. Identifying primary source(s) for composition estimates

Pew Forum researchers identified one or more primary source for each composition estimate. (Sources are listed in Appendix D on page 111.) Researchers sought a recent, reliable source — ideally, a census or large-scale demographic survey. The wording of religious identity questions varies across censuses and surveys, but the ideal measure for Pew Forum researchers was a direct one-step question, such as “What is your religion?” In contrast, many European surveys use a two-step question, such as “Are you religious? If yes, what is your religion?” Two-step questions do not correspond well with census religion questions, which are usually one-step, direct measures. Furthermore, in many countries two-step questions seem to filter out respondents who might otherwise claim a religious identity but who do not consider themselves as having a significant level of religious commitment. An ideal religion measure also offers respondents an opportunity to indicate no religious affiliation as well as specific affiliations.

3. Making adjustments for groups not adequately measured

As necessary, Forum researchers made adjustments to the primary source(s) to account for omitted or underrepresented groups since minority groups are sometimes not measured or not reported in surveys and censuses. Multiple survey sources, denomination counts and estimates produced by country experts for each nation were used to assess whether minority religious groups were omitted or undercounted in the selected primary source(s). Omission or underrepresentation could be the result of limitations in a survey questionnaire or sample design.

a. Adjusting for limitations in a survey questionnaire

Usually, researchers assumed that members of underrepresented groups were included in the sample but not adequately measured by the survey instrument. Adjustments usually come *from* people who indicated “other religion” or failed to answer the religion question to underrepresented religious groups. For example, the only Christian categories in the Demographic and Health Survey in Madagascar are Catholic and Protestant. The survey does not directly measure the recent population of Orthodox Christians, who are counted in the 2008 Afrobarometer survey and the World Religion Database. Based on information about the size of the Orthodox population from those sources, a portion of the respondents who chose the “other religion” option in the Demographic and Health Survey were classified as Orthodox Christians.

In a few cases, Pew Forum researchers made adjustments based on evidence that political, legal or cultural dynamics in a country compromised the validity of self-reported religion.

In India, for instance, there is evidence of a Christian undercount in the 2001 Census because some Christians who belong to Scheduled Castes (historically referred to as Untouchables or Dalits) choose to identify as Hindu when completing official forms such as the census.¹⁷ This is due to a mandate in the Indian constitution that specifies that only Hindus, Sikhs and Buddhists can receive caste-based government affirmative-action benefits (known as reservations in India).¹⁸ After analyzing Indian survey data and convening a special consultation on this topic with leading India demographers at the 2010 Asian Population Association's meeting in New Delhi, Pew Forum researchers adjusted the Christian proportion of India's population from 2.3% to 2.6%, assuming a 10% undercount. In this case, this adjustment comes *from* the Hindu category (Hinduism is the most common religion in India).

b. Adjusting for sampling limitations

In some situations, underrepresented groups are likely to be omitted from the sample itself. Recent migrants who may not be fluent in the language used in a survey are often missing in samples. Accounting for groups not included in the sample requires proportionately deflating survey data to account for the underrepresented populations. For example, Pew Forum researchers made adjustments to survey-based estimates in Europe where the International Institute for Applied Systems Analysis found evidence that some survey samples and population registers under-represented Muslim migrants.

Pew Forum researchers sought to ensure that primary sources were representative of the entire country. When this was not the case, it was usually due to concerns about the safety of interviewers and census takers or disputes about political boundaries. In such cases, Pew Forum researchers attempted to make appropriate adjustments or find an alternative data source that was nationally representative. For example, the 2001 Sri Lankan census was not conducted in a handful of northern and eastern districts because of perilous conditions due to armed conflict. Pew Forum researchers determined, after analyzing religion data from earlier censuses, that the areas that were not covered by the 2001 census historically had a different religious makeup than the rest of the country. After using previous census data to adjust for disproportionately Christian areas that were excluded from the 2001 census, this study's

17 This phenomenon is discussed in Ashok Kumar M. and Rowena Robinson's essay "Legally Hindu: Dalit Lutheran Christians of Coastal Andhra Pradesh" in *Margins of Faith: Dalit and Tribal Christianity in India*, edited by Rowena Robinson and Joseph Marianus Kujur, Sage Publications India Pvt Ltd., 2010.

18 Ministry of Social Justice and Empowerment, Government of India. <http://socialjustice.nic.in/faqs1.php#sc4>.

estimate of 7.5% Christians in Sri Lanka is higher than the 6.9% figure reported in the 2001 census.¹⁹

4. Making adjustments for missing religion data

Some degree of missing data is found in most surveys and censuses. The likelihood that religion data will be missing increases when religion questions are labeled as optional.²⁰ In an attempt to make the estimates of the religious composition of each country as complete as possible, Pew Forum researchers made adjustments for missing religion data. Rather than include “missing data” as a religious category, which some studies do, Pew Forum researchers instead chose to raise the percentage of all religion categories proportionately, including Christians and non-Christians.²¹ For example, the published share of Christians in the Australia census is 63.9%²², but after adjusting for missing data (11.2% of respondents did not answer the census religion question), Forum researchers classified 72% of respondents in the 2006 Australia census as Christian.²³

Discussion of Sources

Censuses

For this study, Pew Forum researchers analyzed religious affiliation data from more than 100 censuses conducted since 1999, comparing more current sources of data with historic census data from hundreds of older censuses as a cross check. Religious affiliation questions from national censuses are the best source for estimating the number of Christians because they generally cover the entire population and are conducted on a fairly regular basis. The chief limitation in using census data is that only about half of recent country censuses included a religious affiliation question. In addition, these surveys are generally conducted only once

19 See www.statistics.gov.lk/PopHouSat/PDF/P2%Organization%20and%20Procedures.pdf.

20 In censuses, a small amount of missing information is common for many measures, and census agencies commonly impute values that are missing. In Canada, for instance, the census agency imputes religious identity for those who choose not to answer the religion question, as it does for those who choose not to answer other census questions. However, in other countries such as the United Kingdom, Australia, and New Zealand, the religion question on the census is optional and the census agencies in these countries include the proportion of respondents who do not answer the religion question in their tabulations of religious composition.

21 As discussed above, adjustments for omitted and underrepresented religious groups involved classifying those who answered “other religion” and, occasionally, some of those who did not answer the religion question into the underrepresented groups. After making any such adjustments to the missing data category, missing data that remained unclassified was used to proportionately raise the shares of all religion categories.

22 <http://www.abs.gov.au/ausstats/abs@.nsf/7d12b0f6763c78caca257061001cc588/636F496B2B943F12CA2573D200109DA9?opendocument>

23 Pew Forum researchers acquired detailed tables about religion responses in the 2006 census from the Australian Bureau of Statistics in order to make these classifications and calculations.

every 10 years. In some cases, Pew Forum researchers have been able to incorporate results from censuses carried out in 2010 and 2011. However, most countries that carried out censuses in these years had not yet released their religious composition data when this report was compiled.

Demographic Surveys

Where recent census data on religion are not available, religious affiliation questions from large-scale demographic surveys, such as Macro International's MEASURE Demographic and Health Surveys (DHS) (<http://measuredhs.com>), are generally the second-best source because of their large sample sizes, sampling frame and representative results at the sub-national 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. For this report, DHS data were acquired and analyzed for 60 countries, including nearly 35 of the countries where census data are lacking or are older than 1999. For most of the DHS surveys, both women and men are interviewed and Macro International provides the data in separate male-female datasets. Pew Forum staff pooled the female and male datasets in consultation with sampling experts at Macro-International so that the combined dataset retains nationally representative results. In countries where only females are interviewed, Pew Forum staff used those data to make the overall Christian estimate for the country.

General Population Surveys

Pew Forum researchers acquired and analyzed religious affiliation data from general population surveys for 149 countries. In 36 of those countries, these surveys provide religious affiliation data where a recent census or demographic survey is lacking. Since general population surveys typically involve only 1,000 to 2,000 respondents, however, they provide less accurate numbers. This is especially true where the size of a Christian population is quite small or Christian groups live in concentrated locations that are not oversampled.

World Religion Database

Pew Forum researchers also used estimates from the World Religion Database (www.worldreligiondatabase.org), primarily for countries where census and survey estimates were out-of-date, unavailable or lacked sufficient coverage. World Religion Database estimates take into account anthropological and ethnographic studies, statistical reports from religious groups, and data from censuses and surveys. The World Religion Database is an outgrowth of the international religious demography project at Boston University's Institute on Culture, Religion, and World Affairs.

A Note on Country and Territory Designation

The word “country” in this report refers to all countries recognized as such by the United Nations. The word “territory” in this report does not have a technical definition, but rather is a general term for distinct geographical entities not recognized as countries by the United Nations but that have separate population estimates reported by the United Nations. Territories in this report include such entities as Hong Kong and Macau (special administrative regions of China), Greenland (an autonomous constituent country within the Kingdom of Denmark) and the Commonwealth of Puerto Rico (an unincorporated territory of the United States).

A Note on Rounding

In this report, estimates of 999 persons or less are identified as “<1,000” and estimates between 1,000 and 9,999 persons are identified as “<10,000.” All other count estimates in tables are rounded to the nearest 10,000. In the narrative of the report, many estimates are rounded to the nearest million or percentage point.