Estimating the Religious Composition of All Nations: An Empirical Assessment of the World Christian Database

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The international religious data in the World Christian Database (WCD), and its print predecessor, the World Christian Encyclopedia *(WCE) have been used frequently in academic studies and the popular press. Scholars have raised questions about the WCD's estimates categories, and potential bias, but the data have not yet been systematically assessed. We test the reliability of the WCD by comparing its religious composition estimates to four other data sources (World Values Survey, Pew Global Assessment Project,* CIA World Factbook*, and the U.S. Department of State), finding that estimates are highly correlated. In comparing the WCD estimates for Islamic countries and American Christian adherents with local data sources, we identify specific groups for which estimates differ. In addition, we discuss countries where the data sets provide inconsistent religious estimates. Religious composition estimates in the WCD are generally plausible and consistent with other data sets. The WCD also includes comprehensive nonreligious data. Recommendations regarding the use of the WCD are given.*

INTRODUCTION

The World Christian Database (WCD) and its print predecessor, the *World Christian Encyclopedia* (*WCE*) (Barrett 1982; Barrett, Kurian, and Johnson 2001), are sources of international religious composition data that many scholars have used.[1] Reviews of the *WCE* universally note its scope (238 countries), large variety of religious variables, and little or no missing data (Gresham 2005; Marty 1999; Noll 2002). The WCD contains information specific to religious adherence and resources, including the percentage and count of adherents belonging to major and minor religious groups in each country. Because of the comprehensiveness of the data and the paucity of reliable international religious composition data, it would be a great boon to researchers if the WCD were assessed and found to be reliable. However, the data have not yet been systematically evaluated.

We assess the reliability of the WCD religious composition data by comparing it with other data, examining sources of estimation differences. We pay special attention to measurements of religious composition in Islamic countries and Christian denominational measures for the United States. We also discuss countries that pose estimation problems for all five data sets, and the difficulties of measuring the nonreligious.

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CRITIQUES OF THE WCD

The main criticisms scholars have directed at the WCD concern the estimation and categorization of certain religious populations. There are questions about whether religious composition within countries is skewed by the overcounting of certain groups or variance in quality of information obtained on different religious groups. There is also concern about possible bias because the *WCE* was originally developed as a Christian missionary tool. Some of the country descriptions in the *WCE* have been characterized as having an anti-Catholic and pro-Protestant orientation (McClymond 2002:881), and Martin describes the *WCE* as a work "dedicated to the conversion of mankind" (1990:293). Criticisms have also been raised about projections for different religious groups and demographic trends, as the WCD provides empirical data for the population of religious groups well into the future.

Doubts have been raised about the WCD's estimation and categorization of new religious groups. Steenbrink (1998) criticizes the 1982 *WCE* data for Indonesia, which suggest the population is only 43.2 percent Muslim and 36.4 percent "new religionist." Steenbrink maintains that those classified as "new religionists" should actually be classified as Muslim, even if stricter Islamic groups might disagree. Lewis (2004) observes that the Soka Gakkai, Rissho Kosei Kai, and Nichiren Shoshu in the Japanese Buddhist tradition are classified as new religions, whereas Pentecostals (a much more recent movement) are classified as Christian rather than a new religion.

The size of Christian populations is also debated. Jenkins (2002) notes a large gap between the reported size of India's Christian population in the government census and in the *WCE*/WCD. While he admits that census figures omit many Scheduled Caste adherents who can lose government benefits by declaring Christian identity, he suspects the WCD overcounts Christians in India. The *WCE* has also been criticized for including "inadequate and confusing" categories of Christian religious groups, in particular, "Great Commission Christians," "Latent Christians," "Non-baptized believers in Christ," and "Crypto-Christians" (Anderson 2002:129). Some worry that it is difficult to distinguish Christians who keep their faith secret from Christians who practice an indigenized form of Christianity that incorporates elements of non-Christian religions. McClymond writes that estimates for the "non-baptized believers in Christ" or "non-Christian believers in Christ" in India who are Buddhist and Muslim "seem to be largely anecdotal" (2002: 886).

Estimates of adherents in the United States have also been challenged. Noll has questioned the designation and size of certain Christian categories, for which the WCD and *WCE* provide the most detail. Although he finds estimates for most Christian denominations agree with other sources, he notes that "Great Commission Christians"—a category used to describe those actively involved in Christian expansion—are estimated in the United States and Europe to be a much larger group than the number of Christians who weekly attend church (2002:451). Another cause for concern is the number of "independents," a muddled category including African-American, "community," and "Bible" churches. Changes in the data set also raise issues about categories: Anderson notes that groups previously labeled as Protestant in the first edition of the *WCE* in 1982 (Conservative Baptist Association of America, the Orthodox Presbyterian Church, and the Presbyterian Church in America) were relabeled Independent in the second edition published in 2001 (Anderson 2002).

Some have argued that projections of religious composition for years such as 2025 and 2050 should not be included with the empirical data, as they are merely conjecture (McClymond 2002). Irvin (2005) argues against making predictions about the future of worldwide religion based on recent statistics because Christian growth in Asia and Africa will not necessarily continue along the trajectory it has in past decades.

Johnson and Barrett (2004) defend the reliability of the WCD data, including its use in making predictions, arguing their data are based on research done by religious denominations and census reports from countries where billions of dollars a year are spent on data collection.

They argue that the WCD can provide accurate projections because long- and short-term trends can be identified based on census data and thorough analysis of changes in births and deaths, conversion, and migration; the website is periodically updated to reflect revised information and projections.[2] In the *WCE*, some specific information is given on what sources were used for data collection within each country, and bibliographies of those sources are provided. However, the specific source and method used for individual variables is usually absent, leaving one to trust the rigor and judgment of the authors.

COMPARING THE WCD TO OTHER DATA SOURCES

To address the criticisms mentioned above, we compare the religious composition estimates in the WCD to four other cross-national data sets on religious composition (two survey-based data sets and two government-sponsored data sets): the World Values Survey (WVS), the Pew Global Attitudes Project (Pew), the Central Intelligence Agency (CIA), and the U.S. State Department (State Department).[3] In our analysis, we find support for some of the criticisms made by reviewers, but on the whole we find that WCD estimates are generally consistent with other data sets. The WCD is highly correlated with the other data sets, estimates for percent Christian, Muslim, Buddhist, and Hindu; however, the WCD does have higher estimates of percent Christian within countries. Another important difference between the WCD and other cross-national data sets is that the WCD includes data on 18 different religious groups for each country while other data sets only estimate the size of major religions. In evaluating some of the specific critiques discussed above, we find that WCD estimates of American Christian groups are generally higher than those based on surveys and denominational statistics. WCD estimates of percent Muslim in Islamic countries do differ from CIA data, but this can be explained by differences in measurement: the WCD counts tiny religious minorities, classifies some Muslim groups within the neoreligionist and ethnoreligionist categories, and has higher numbers of nonreligious. We also find that the WCD has some unique strengths—it is the only data set with estimates for the percent nonreligious and has the largest number of countries. Additionally, we discuss cases with large differences in absolute population estimates. While joint limitations of these data sets may limit the conclusions drawn from correlational analysis, we believe that our analysis is useful for revealing the strengths, weaknesses, and potential biases of the WCD.

DESCRIPTIVE DIFFERENCES

Table 1 summarizes the differences between the data sets, including number of countries included, the years and form of the data, categories of religious affiliation, inclusion of the nonreligious, and underlying motivations of those creating the data.

The WCD began as the *World Christian Handbook*, an Anglican and Protestant publication containing information on church history, missionary work, and church statistics that appeared every five years from 1949 to 1968. In 1968 its founders decided to do a "comprehensive survey of all branches of global Christianity," leading to the creation of two editions of the *WCE* and World Christian Trends. Unless specified otherwise, further references to the *WCE* in this article refer to the 2001 edition. The majority of data came from fieldwork, unpublished reports, and private communications from contributors who are a mix of clergy, academics, and others; the Christian origins of the encyclopedia explain in part its detailed information on Christian groups. Other sources listed in WCD documentation include 5,000 questionnaires returned by churches between 1982 and 2000, field surveys and interviews, directories of denominations, government censuses with questions on religion, doctoral dissertations on religion, and interviews with religious leaders. The WCD also includes data on other demographic variables such as AIDS cases and hospitals per capita, as well as numerous religious statistics including the number of missionaries and

TABLE 1
QUALITATIVE COMPARISON OF CROSS-NATIONAL RELIGIOUS COMPOSITION DATA SETS

	World Christian Database	World Values Survey	Pew Global Attitudes Project	U.S. Department of State*	CIA World Factbook*
Year(s) analyzed	2005**	1998–2002	2002	2001	2000
Number of countries***	237	68	43	176	227
Year(s) available	Current (also 1900, 1970, 1980, 1999 in WCE)	Some years, 1981–2004	2002	1989–2005	2000–current
Form(s) of data	% and raw numbers	Survey Research	Survey Research	% or raw numbers	%
Motivation	Resource for Anglican and Protestant clergy and missionaries			Section 102 of International Religious Freedom Act of 1998	U.S. intelligence and security
Measurement	Membership, personal belief	"Do you belong to a religious denomination?"	"Do you consider yourself as belonging to a particular religion? IF YES, which one?"	Unclear	Unclear
No. religious variables	300	17	15	0	0
Data on importance of God in one's life	No	Yes	Yes	No	No
Religious attendance data	No	Yes	Yes	No	No

(Continued)

TABLE 1
(Continued)

	World Christian Database	World Values Survey	Pew Global Attitudes Project	U.S. Department of State*	CIA World Factbook*
Strengths	Has the only worldwide data for % nonreligious	Consistent religious categories	Consistent religious categories		More information on Muslim, Buddhist, and Hindu
Weaknesses	Overestimates % Christian	Inconsistent Sampling methods	Sampling in over 30% countries disproportionately urban	Minority religions not estimated	Minority religions not estimated

Note: *Full names: Annual Report on International Religious Freedom, Department of State, and *Central Intelligence Agency World Factbook*.

**WCD data dated 2005 are based on adjusted 2000 data. Data are adjusted approximately every five years.

***Because WCD lists Cyprus and Northern Cyprus separately whereas the other data sets (CIA and State Dept.) combine them, in joint analyses, WCD has 236 countries. CIA has information but no numbers for 35 countries, notably Guatemala, Italy, Malaysia, North Korea, Russia, Ukraine, Vietnam, and Yemen.

baptisms.[4] The WCD provides estimates of religious composition that are projections of the 2001 *WCE* data with adjustments for population growth based on figures from the UN Demographic Database.

The WVS originally stemmed from the European Values Survey group, which carried out surveys in 24 Western European countries in 1981. Subsequent waves, which grew to include non-European Countries, were carried out in years 1989–1993, 1994–1999, and 1999–2004. This article includes the 68 surveys carried out between 1998 and 2002. Between 1998 and 2002, 68 countries were surveyed. Two hundred forty-four survey questions are included, focusing on values and attitudes about work, religion, and politics. The WVS treats religion as a form of membership, asking: "Do you belong to a religious denomination?" The samples are nationally representative, and include around 1,000 face-to-face interviews for each country.

The Pew data are from the Pew Global Attitudes Project (PGAP), which includes 44 national surveys with about 38,000 individuals. Religious composition data are only provided for 43 countries, however, because respondents in China were not asked about their religion. Similar to the WVS, the Pew survey treats religion as membership in a group, asking: "Do you consider yourself as belonging to a particular religion?" The data were collected in 2002 and include 98 survey questions focusing on themes such as attitudes toward democracy, the global economy, and the United States. Sampling is not consistent; some countries are sampled only within one city and its surrounding areas, and almost a third of the countries have a disproportionately urban sample. Sample sizes for each country are generally under 1,000, ranging between 500 and 3,000, and interviews were conducted face-to-face with adults.

The U.S. CIA provides online and published country profiles that include percentage of the population adhering to the major religious groups in each country, as well as listings of minority religious groups, often without numeric estimates. The "Field Listing" page on the CIA website provides the religious composition data for all the countries in one table, making it fairly easy to transform into analyzable data. The CIA gives no description of how the data are gathered other than to say on their "Frequently Asked Questions" page that space precludes listing the sources.

The U.S. State Department provides statistics for religious composition in 176 countries as part of its annual International Religious Freedom Report, established in 1998 to advise the U.S. president, the State Department, and Congress on the state of religious freedom. These data are embedded in the text of the country profiles. The CIA and State Department data are not identical, as shown in our correlation analysis below. Employees of the State Department, Foreign Service, and other unspecified areas of the U.S. government gather the data from government officials in other countries, religious leaders, nongovernmental organizations, journalists, human rights monitors, religious groups, and academics (U.S. State Department 2005). While the report describes the data as collected yearly, some country profiles contain notes indicating the data are not from the current year.

The data sets vary in number of religious categories. The WCD includes estimates for 18 religious categories in each country: atheist, Bahai, Buddhist, Chinese universist, Christian, Confucian, ethnoreligionist, Hindu, Jain, Jew, Muslim, nonreligious, other religion, Spiritist, Sikh, Shintoist, Taoist, and Zoroastrian. The WCD also provides estimates of the populations of denominations local to each country. The survey-based data sets record the religious identity of all people surveyed and consequently include various religious categories, so unlike the WCD they do not have estimates for the same religious groups in each country. There are 51 categories in Pew and 86 in the WVS, but categories differ by country. The other full-country data sets (State Department, CIA) only include estimations for the majority or large religious groups in each country. The WCD is also unique in that it estimates the percent not associated with any religion,

while data on nonreligious are inconsistent and sparse in the two government sponsored data sets. In the government-collected data, nonreligious categories appear only in certain countries, which may be because there are too few people religiously unaffiliated, or because "nonreligious" is not considered a religious category by governments. Pew and WVS include a nonreligious category for all, the countries analyzed.

The data sources differ in terms of how they treat religion. The use of categories such as "crypto-Christians" (those who are secretly Christian) shows that the WCD sometimes treats religion as a matter of personal belief and is consistent with missionary interests, but it also relies on membership numbers from religious organizations. Pew and WVS use survey questions about belonging to a religion or denomination. The State Department and the CIA rely on census data based on self-identification and other unknown sources.

CORRELATION AND ESTIMATION

We ran correlations of the five data sets with each other on the percentage of adherents to the major world religions (Christianity, Islam, Buddhism, and Hinduism) as well as the nonreligious (Table 2). The WCD is highly correlated with the other four data sets, with most correlations near 0.90, which suggests that its data for percent Christian, percent Muslim, percent Buddhist, and percent Hindu are generally reliable. However, the other data sets often do not have information for all countries, so the correlations only represent the countries where other data sets record percentages for those religious categories. Most notably, the nonreligious data are not highly correlated between most of the data sets.[5] While all of the data sets have mostly complete data for percent Christian and percent Muslim, data on percent Buddhist, percent Hindu, and percent nonreligious are incomplete in various data sets. The nonreligious category has few observations in State Department and CIA data and is best represented in the WCD, WVS, and Pew. The estimates for Hindus and Buddhists are especially problematic in the CIA data.

Figure 1 shows that the WCD tends to overestimate percent Christian relative to the other data sets. Scatterplots show that the majority of the points lie above the $y = x$ line, indicating the WCD estimate for percent Christian within countries is generally higher than the other estimates. Although the bias is slight, it is consistent, and consequently, the WCD estimates a higher ratio of Christians in the world. This suggests that while the percentage Christian estimates are closely related among the data sets, the tendency is for them to be slightly higher in the WCD.

ISLAMIC COUNTRIES

Given the increasing scholarly attention paid to Islamic societies, we examined whether the WCD provides reliable religious composition data for countries where Muslims comprise at least 40 percent of the population. We compared WCD estimates of percent Muslim for these countries with those in the CIA data set, which has the most observations and no known problems in measuring Muslim and Christian percentages. Overall, WCD estimates of the percent Muslim for Islamic countries are very close to CIA figures, agreeing by more than 95 percent in 19 of 44 cases. We were able to classify the remaining 25 cases into three groups: Arab Gulf states, former Communist countries, and countries with popular syncretistic or traditional religions. We find the WCD offers data on more religious groups for Arab Gulf states than the CIA, making it the preferred data set for these countries. On the other hand, the WCD likely underestimates percent Muslim in former Communist countries and countries with popular syncretistic and traditional religions.

TABLE 2
CORRELATIONS OF RELIGIOUS COMPOSITION ESTIMATES
BETWEEN DATA SETS

	% Christian						% Buddhist				
	WCD	Pew	WVS	State	CIA		WCD	Pew	WVS	State	CIA
WCD	1.000					WCD	1.000				
	(236)						(236)				
Pew	0.9188	1.000				Pew	0.9961	1.000			
	(43)	(43)					(43)	(43)			
WVS	0.9251	0.9146	1.000			WVS	0.8225	0.9342	1.000		
	(68)	(31)	(68)				(68)	(31)	(68)		
State	0.9582	0.8979	0.9365	1.000		State	0.9303	0.9888	0.8940	1.000	
	(167)	(39)	(61)	(167)			(62)	(16)	(25)	(62)	
CIA	0.9346	0.8468	0.8538	0.9408	1.000	CIA	0.9150	0.9819	0.9989	0.9446	1.000
	(168)	(34)	(55)	(132)	(168)		(13)	(4)	(4)	(12)	(13)

	% Muslim						% Hindu				
	WCD	Pew	WVS	State	CIA		WCD	Pew	WVS	State	CIA
WCD	1.000					WCD	1.000				
	(236)						(236)				
Pew	0.9806	1.000				Pew	0.9990	1.000			
	(43)	(43)					(43)	(43)			
WVS	0.9704	0.9868	1.000			WVS	0.9972	0.9985	1.000		
	(68)	(31)	(68)				(68)	(31)	(68)		
State	0.9712	0.9866	0.9888	1.000		State	0.9873	0.9993	0.9994	1.000	
	(123)	(30)	(45)	(123)			(57)	(14)	(21)	(57)	
CIA	0.9732	0.9641	0.9856	0.9764	1.000	CIA	0.9897	0.9994	0.9992	0.9922	1.000
	(92)	(23)	(28)	(79)	(92)		(14)	(5)	(5)	(11)	(14)

	% Nonreligious				
	WCD	Pew	WVS	State	CIA
WCD	1.000				
	(236)				
Pew	0.7327	1.000			
	(43)	(43)			
WVS	0.7447	0.7516	1.000		
	(68)	(31)	(68)		
State	0.7309	0.8534	0.8789	1.000	
	(83)	(23)	(39)	(83)	
CIA	0.5475	.[a]	0.4745	0.8214	1.000
	(12)	(2)	(5)	(4)	(12)

[a]Because of the small number of cases in this correlation (2), the number is not meaningful for our purposes. The two cases are: France (CIA estimates 6 percent nonreligious, while Pew estimates 27 percent) and the United States (CIA and Pew estimates are 10 percent and 9 percent, respectively).

Note: Number of observations in parentheses. The number of countries correlated between data sets depends upon the religious group in question. Some data sets do not have estimates for certain countries or religious groups, so the correlation is between the countries and religious groups that are available. Separately, we also computed correlation of estimates for the 20 countries that WCD, Pew, and WVS have in common (Argentina, Bangladesh, Canada, Egypt, India, Indonesia, Japan, Jordan, Mexico, Nigeria, Pakistan, Peru, Philippines, South Africa, South Korea, Tanzania, Turkey, Uganda, Venezuela, and Vietnam). The patterns are consistent with this table.

FIGURE 1
**SCATTERPLOTS OF WCD ESTIMATES OF PERCENT CHRISTIAN AGAINST
STATE DEPARTMENT, CIA, PEW, AND WVS ESTIMATES**
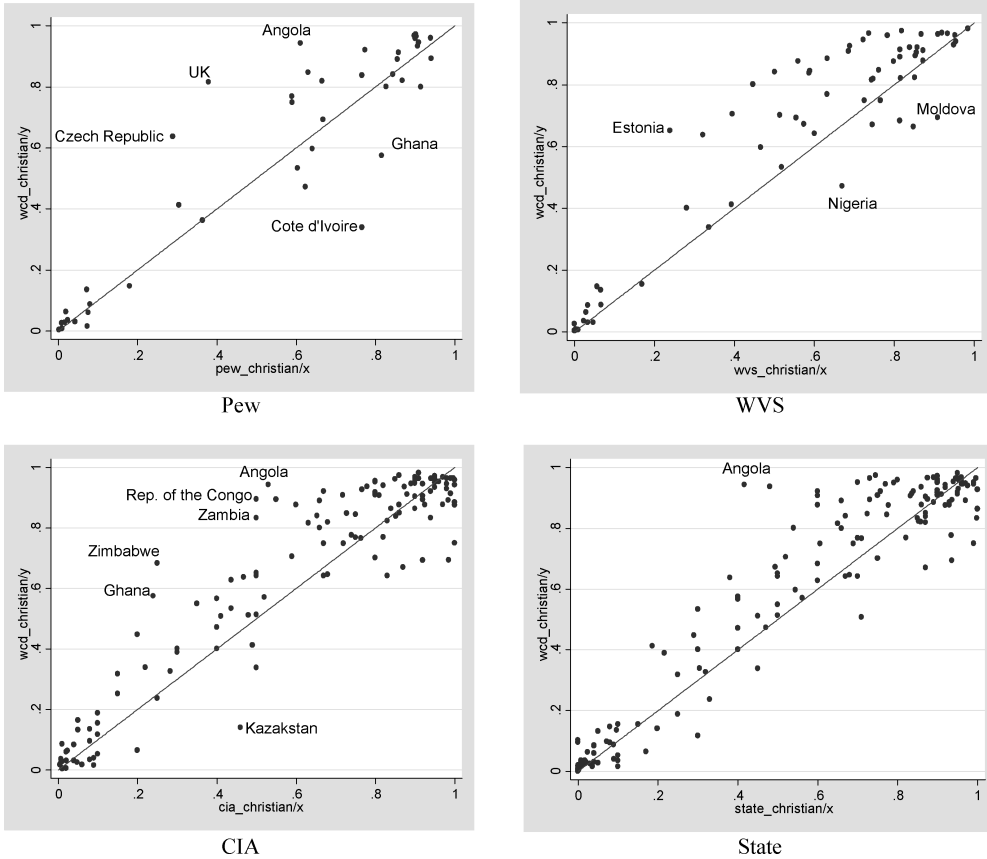
The first group includes Bahrain, Qatar, Saudi Arabia, and the United Arab Emirates, countries where the WCD provides details on the religious identity of minority populations that may be too small to appear in survey samples or that data sets such as the CIA overlook. For example, while the CIA declares both Bahrain and Saudi Arabia to be 100 percent Muslim, the WCD identifies adherents of Buddhism, Hinduism, and Christianity that include expatriate workers from India, China, the United States, and the United Kingdom, as well as indigenous and Levantine Arab Christians; according to the WCD these minorities account for 7.8 percent of Saudi Arabia's population and 16.6 percent of Bahrain's. The 1991 Bahrain census lends credibility to the WCD estimates by showing that about 18 percent of Bahrain's population is non-Muslim. Thus, for analyses that include Arab Gulf states, we recommend the WCD so long as researchers recognize that non-Muslims are mostly expatriate workers.

The second group includes Albania, Azerbaijan, Kazakhstan, Kyrgyzstan, Tajikistan, and Uzbekistan, countries that share a history of religious repression under Communism followed by varying degrees of religious renewal after the collapse of the Soviet Union. *WCE* data reflect part of this story, showing percent nonreligious/atheist growing from zero percent to 64 percent in Albania and from zero percent to 42 percent in Uzbekistan between 1900 and 1970. However, the *WCE* does not show nonreligious/atheist percentages declining to pre-Communism levels after the collapse of Communist governments; rather, they remain on the order of 20 percent to 25 percent. While these estimates may reflect the reduced significance of religion in post-Communist

countries, CIA data and Pew survey data from Uzbekistan show that such high estimates for percent nonreligious are unwarranted. Pew shows that 96 percent of Uzbeks still identify with either Islam or Christianity. Although the inclusion of percent nonreligious is often a strength of the WCD, evidence from former Communist countries suggests these figures should be used carefully, especially when performing cross-national analyses including Islamic countries. WCD estimates for the nonreligious may be inconsistent across Islamic countries, with figures for former Communist countries running high relative to those of other nations. This leads to an underestimation of Muslim and Christian populations.

The third group includes Brunei, Guinea, Guinea-Bissau, Indonesia, Mali, Niger, Nigeria, and Sierra Leone, countries where discrepancies between the WCD and other data sets can be attributed primarily to the WCD allotting ethnoreligionists and neoreligionists a greater percentage of the total religious composition. As mentioned in earlier criticisms of the WCD (Steenbrink 1998), this is seen most clearly in the case of Indonesia, where the WCD identifies nearly 50 million neoreligionists (22 percent of the total) and lists the Muslim population at 55 percent, which is much lower than figures provided by the Indonesian Department of Religion (87 percent), the CIA (88 percent), the WVS (93 percent), and Pew (94 percent). While the WCD data on adherents of syncretistic religions could in principle be of value, none of the other data sets we examined support the WCD figures for Indonesia. More importantly, ambiguity surrounding how exactly Muslims were counted (e.g., whether religious orientation was a factor or not) raises the possibility that some people who identify themselves as Muslim were placed in a different category such as neoreligionist, which Steenbrink (1998) has warned against. Operationalizing "Muslim" to exclude those who worship Hindu deities is understandable, but if criteria also include regular prayer, fasting, attending mosque on Friday, or support for Islamic political parties, then the WCD has set standards for Indonesia that it has not applied consistently for all Muslim countries.

Overall, the WCD data for Islamic countries is comparable to CIA data for almost half of the sample and demonstrably better for Arab Gulf states. However, our analysis also suggests the WCD may be inconsistent in counting Muslims because it lacks a mechanism for representing varying degrees of Islamic religious commitment. This has likely produced low estimates of percent Muslim in cases such as Indonesia and Uzbekistan where some measure of religious orientation, not merely nominal affiliation, seems to play a role in determining population size.

AMERICAN CHRISTIAN COMPOSITION DATA

In this section, we compare WCD estimates of Christian populations in the United States with widely cited sources (estimates of non-Christian populations have been discussed elsewhere; see Smith 2002a, 2000b). Focusing on the Christian population is useful because estimates of Christian groups are generally more reliable than estimates of relatively small non-Christian groups and because it allows us to explore the possibility mentioned in earlier criticisms that the WCD may systematically distort the size of different Christian groups.

The WCD estimates that 84.12 percent of Americans in 2005 are "professing Christians," a category that includes "affiliated" Christians with formal ties to congregations and the "unaffiliated" without such ties. This estimate is high compared with other recent estimates, which may reflect a general tendency to overestimate Christians in the WCD. By comparison, the 2002 GSS and the 2001 American Religious Identification Survey (ARIS) surveys reported lower estimates of percent Christian (Kosmin and Mayer 2001). Both the GSS and ARIS suggest a more significant decline in the proportion of Christians in America than the *WCE* and WCD, where there is less than a 2 percentage decline reported for the last 15 years versus a 6 to10 percentage decline in other data sets. The likely explanation for this discrepancy is that the *WCE* and WCD algorithm

has been slow to adjust for the de-Christianization of the American population. Another possibility is that an increasing number of Americans choose not to identify explicitly as Christians in surveys but nonetheless have some degree of Christian identity (occasional churchgoing, upbringing, belief, spouse), which could warrant their enumeration as Christian (Hout and Fischer 2002).

To further understand WCD estimates of America's Christian population, we can compare its counts of denominational adherents with official statistics reported by the denominations. The WCD reports the total adherent count within Christian denominations and movements is 226 million, of whom 20 million are estimated to be doubly affiliated, leaving 206 million unique adherents. An additional 46 million claim to be Christians but are not affiliated with a church, for a total of 252 million affiliated and unaffiliated Christians. The 2005 *Yearbook of American and Canadian Churches'* tabulation of official church membership is 163 million. In contrast to the WCD, the *Yearbook* does not count members of independent churches or adjust for doubly affiliated adherents. This difference of 43–63 million adherents between the *Yearbook* and the WCD warrants further examination.

In Table 3 , we list the 20 largest denominations in the United States, according to the WCD, with membership figures from the WCD, the 2005 *Yearbook*, and Religious Congregations and Membership in the United States 2000 (RCMS). Three groups do not have estimates in the *Yearbook* (independent charismatic churches, megachurches and networks, and Fullness/Praise Network of Churches). Although the Yearbook reports higher membership for three groups (Catholics, Missouri Synod Lutherans, and Episcopalians), the WCD reports higher numbers for the remaining denominations, half of which are at least a million members higher than *Yearbook* totals. Some of this difference is due to terminology and definitions: some denominations may have a significant number of unbaptized children and affiliated adults not included in membership statistics. An example is the Southern Baptist Convention, which claims 16 million members (also reported by the *Yearbook*), although the WCD reports 21 million adherents. This total adherent count is similar to the 19.8 million estimate computed for the year 2000 by RCMS researchers who adjusted official figures at the county level to compensate for affiliated minors under 14 likely to have been unqualified for membership counts. The exclusion of children in denominational membership figures lends credibility to the higher WCD estimates.

However, in several cases we suspect unadjusted official church numbers are already upwardly biased. Baptist churches have few incentives to update their membership rolls when members move or go inactive. To compensate, the Association of Statisticians of American Religious Bodies (2008) discounts the official SBC membership count by 5 million.

WCD estimates of the Presbyterian Church (USA), Episcopal Church in the United States, and Evangelical Lutheran Church in America are within 10 percent of the respective *Yearbook* figures for these mainline Protestant denominations. WCD estimates of the United Methodist Church population are about 20 percent higher than the *Yearbook* though close to the estimate in RCMS, which is adjusted to include children who do not qualify for official Methodist membership counts. The WCD adjusts for "doubly counted" adherents, who may be on multiple membership lists, when aggregating up from denomination level statistics to religious blocks and total religious adherents. However, we do not know how the WCD derives its estimate of 20 million doubly counted U.S. adherents.

Current WCD estimates of American Christian populations are generally higher than those based on survey evidence and denominational statistics. The WCD estimate of the total Christian population does not sufficiently reflect the recent downward trend in the percentage of Americans professing Christian identity in surveys. Although reliable counts of adherents in African-American denominations are unavailable, it seems WCD estimates of these denominations, and others, are based upon an uncritical acceptance of institutional estimates. On the other hand, for identifying the total population of children and adults somehow affiliated with a

TABLE 3
SIZE OF AMERICAN DENOMINATIONS IN THE WCD, *YEARBOOK OF AMERICAN AND CANADIAN CHURCHES* (2005), AND RELIGIOUS CONGREGATIONS AND MEMBERSHIP IN THE UNITED STATES (2000)

Denomination	WCD	YB	Difference (WCD–YB)	RCMS
Catholic Church	65,900,000	67,259,768	−1,359,768	62,035,042
Southern Baptist Convention	21,000,000	16,439,603	4,560,397	19,981,467
National Baptist Convention, USA, Inc.	11,500,000	5,000,000	6,500,000	
United Methodist Church	9,973,000	8,251,175	1,721,825	10,350,629
Church of God in Christ	7,500,000	5,499,875	2,000,125	
Church of Jesus Christ of Latter-Day Saints	5,800,000	5,503,192	296,808	4,224,026
Other independent charismatic churches	5,000,000		5,000,000	
Evangelical Lutheran Church in America	4,999,000	4,984,925	14,075	5,113,418
African Methodist Episcopal Church	4,200,000	2,500,000	1,700,000	
National Baptist Convention of America	4,133,000	3,500,000	633,000	
Other megachurches or networks	3,500,000		3,500,000	
Presbyterian Church (USA)	3,470,000	3,241,309	228,691	3,141,566
Progressive National Baptist Convention	3,400,000	2,500,000	900,000	
Fullness/Praise Network of Churches	2,900,000		2,900,000	
Assemblies of God USA	2,851,000	2,729,562	121,438	2,561,988
Lutheran Church-Missouri Synod	2,487,000	2,488,936	−1,936	2,521,062
Jehovah's Witnesses	2,400,000	1,041,030	1,358,970	
Orthodox Church in America	2,400,000	1,000,000	1,400,000	
Episcopal Church in the USA	2,206,000	2,320,221	−114,221	2,314,756
Greek Orthodox Archdiocese of America	1,980,000	1,500,000	480,000	427,659

Note: Denominations shown are the 20 largest according to the WCD.

particular denomination, the WCD may be more useful than official counts that use more restrictive standards in counting members.

INCONSISTENT ESTIMATES

Next we identify countries with inconsistent estimates across the data sets and discuss historical and methodological reasons for the discrepancies (Table 4). We find two major groups of countries with inconsistent estimates: African countries with religious syncretism or a history of social disorder, and formerly Communist countries.

In Africa, religious syncretism and social disorder pose difficulties for religious estimation.

TABLE 4
CONTINENT, COUNTRY, AND RELIGIOUS COMPOSITION ESTIMATES
(PERCENT) FOR COUNTRIES WITH INCONSISTENT ESTIMATES

Continent	Country	Religion	WCD	Pew	WVS	State	CIA
Africa	Angola	Christian	94	59	.	42	53
Africa	Burundi	Christian	92	.	.	60	67
Africa	Congo, Republic of the	Christian	90	.	.	88	50
Africa	Cote d'Ivoire	Christian	34	78	.	30	22
Africa	Gabon	Christian	89	.	.	73	55
Africa	Ghana	Christian	57	82	.	40	24
Africa	Nigeria	Christian	47	62	67	40	40
Africa	Zambia	Christian	83	.	.	85	50
Africa	Zimbabwe	Christian	68	.	81	60	25
Africa	Cote d'Ivoire	Muslim	28	14	.	39	60
East Asia	Mongolia	Buddhist	23	.	.	93	.
East Asia	Republic of Korea	Buddhist	15	24	21	22	47
East Asia	Vietnam	Buddhist	49	55	15	50	.
East Asia	Indonesia	Muslim	54	94	93	87	88
Europe	Czech Republic	Christian	64	26	.	38	47
Europe	Kazakhstan	Christian	14	.	.	20	46
Europe	Ukraine	Christian	80	83	.	8	.
Europe	United Kingdom	Christian	82	38	.	65	63
Oceania	Christmas Island	Buddhist	12	.	.	.	55
South Asia	India	Christian	6	0	3	2	2
Western Hemisphere	Bermuda	Christian	91	.	.	60	81
Western Hemisphere	Cuba	Christian	54	.	.	.	85
Western Hemisphere	United States	Christian	84	84	50	.	84

Note: Countries with over 30 point difference between estimates of the WCD and one other data set were selected. Estimates for percent Christian in India and Nigeria did not meet these criteria but are included because of scholarly interest.

In countries where there are many syncretic religious groups, particularly ones that mix elements of traditional (such as animist) practices with Christianity and Islam, classification depends on the criteria one uses. In the survey data, religious categories are self-identified, but it is unclear what methods are used by the other data sets. All the African countries with very inconsistent estimates for percent Christian (Angola, Burundi, Congo-Brazzaville, Cote d'Ivoire, Gabon, Ghana, Zambia, and Zimbabwe) have some populations that mix religious practices. In Gambia, in addition to Islamic and Christian religions being combined with animism, the mix of religious practices may be further increased due to intermarriage between Muslims and Christians.

Widespread and prolonged social disorder caused by civil war and government instability lead to difficulties in gathering reliable data. Burundi has had widespread ethnic violence between Hutu and Tutsi factions. The *WCE* states that the country has also had tensions between church and state, escalating at times to "near anarchy." The State Department cites its source for estimates of Roman Catholics as an unnamed official in the absence of reliable official data. Many of the African countries have both syncretistic practices and social disorder.[6]

For those cases associated with Communist regimes, part of the problem may stem from atheism's establishment as the official belief system. We found inconsistencies for Czech Republic, Estonia, Kazakhstan, Ukraine, Mongolia, and Vietnam. More recently, as the status of religion

in Communist or formerly Communist states has changed, traditional practices have reemerged, and these changes are exacerbating the effect of variations in survey wording and data gathering methods. Additionally, the proportion of nonreligious tends to be high, and there are problems in measuring the nonreligious (discussed below).

Two cases deserving special mention are Cote d'Ivoire and India. In the case of Cote d'Ivoire, we find that migratory workers, mostly Muslim or Christian, may be accounted for differently among the data sets. Estimates among the data sets range from 34 percent to 78 percent Christian and from 14 percent to 60 percent Muslim. Pew reports the highest number of Christians (and lowest number of Muslims); this is most likely due to disproportionately urban samples. As stated in previous analysis on Islamic countries, while we would recommend the WCD in these cases, one should be advised that they do take the migratory workers into account in their religious composition estimates.

For India, which others have cited as problematic, the WCD has a higher estimate for percent Christian than the other data sets, which range from 2 percent to 3 percent. The *WCE* entry for India provides some reasons why its estimates for percent Christian diverge from the census figures (which the government data rely upon): the difference comes from Christian believers in high and low castes identifying themselves as Hindu for various reasons, including pressure by religious or militant organizations, and the existence of "isolated radio believers" who do not affiliate with particular denominations. The *WCE* does not explain how it estimates the number of isolated radio believers, presumably a particularly difficult population to measure. The Pew data for India also differ, perhaps because the Pew sample is disproportionately urban.

In sum, causes of inconsistent estimates include circumstances that make religious data difficult to gather, such as religious syncretism, social disorder, transitions from Communism, and migration patterns. Discrepancies between data sets are also due to differences in the operationalization and measurement of religious identity.

Data on Nonreligious

Nonreligious is a category that data sets treat differently. It is unclear what method is used in the WCD to measure the nonreligious. In the WVS and Pew, respondents are classified as nonreligious only if they choose the category "none" in response to questions about belonging to a religion (those who did not know or did not respond are not included). The CIA provides data on the nonreligious for only 12 of 227 countries because of its method; it tends to list the major religions in each country and group the rest in the "other" category. Therefore, if atheism or nonreligious is not a major religious group in the country the CIA does not mention it. The State Department pays more attention to the nonreligious than the CIA, giving estimates of nonreligious in 83 of 176 countries.

The surveys ask about religious belonging, which may impact their measurement of nonreligious. In countries where ethnoreligious or traditional indigenous religions are widely practiced, a respondent may indeed say that he or she is not a member of any of these religious denominations. However, if the respondent practices indigenous religions without being a member of a formal organization, this will not be accounted for in the data set.

Conclusion

In sum, we find that the WCD religious composition data are highly correlated with other sources that offer cross-national religious composition estimates. For cross-national studies, the WCD may be more useful than other sources of data because of the inclusion of the largest number of countries, different time periods, and information on all, even small, religious groups.

We find some evidence for the three main criticisms directed at the WCD regarding estimation, ambiguous religious categories, and bias. The WCD consistently gives a higher estimate for percent Christian in comparison to other cross-national data sets. For Indonesia, the *WCE* entry notes that its estimates for percent Christian diverge from the census figures at times because of its inclusion of noncitizen groups living in the country and the way it categorizes adherents of new religions. For the data on India, the difference may come from Christian believers in high and low castes identifying themselves as Hindu for various reasons and the existence of isolated radio believers who do not affiliate with particular denominations.

We also found evidence of overestimation when we compared WCD data on American denominational adherence to American survey data such as ARIS, due in part to inclusion of children, and perhaps also to uncritical acceptance of estimates from religious institutions. We agree with reviewers that some of the WCD's religious categories are impossible to measure accurately, such as "Great Commission Christians," "latent Christians," and "Crypto-Christians."

We find that some adherents to syncretistic religions are not classified as Muslim even if they would identify themselves as such, which poses problems for estimates of percent Muslim in Indonesia and some countries in Africa. Additionally, we find the WCD likely underestimates percent Muslim in former Communist countries and countries with popular syncretistic and traditional religions. In African countries with syncretistic religious practices and social disorder, estimates vary widely. The same is true for former Communist countries. Discrepancies are due to inaccurate data, reliance on government reports, and dated information.

Data on percent nonreligious are not highly correlated among the five data sets. Each data set treats the nonreligious in its own way; while some equate the category to the absence of belonging to a religious organization, others treat it as classifying oneself as holding a nonreligious belief system. The WCD, Pew, and WVS all provide estimates for nonreligious for every country.

NOTES

1. Whereas the data were accessible in the past only by sifting through over 1,500 pages in the encyclopedia, they are now downloadable as the WCD from the website of the Center for the Study of Global Christianity at Gordon-Conwell Theological Seminary, and the World Religion Database (WRD) housed at Boston University. As of 2007, the WCD is published by Brill Academic Publishers.
2. Unfortunately, old versions of the WCD do not seem to be archived. Our analysis is based on 2005 WCD data. The WCD has been updated twice in 2008, based first on new UN population data and later on religious membership data. For scholarly purposes, we would like to see the WCD maintain an archive of prior data.
3. We examined an additional government source, the U.S. Census Bureau International Data Base, but years provided in electronic format have a limited range from 1960–1992.
4. Although the WCD numbers in 2000 match with World Bank and UN sources, their 2005 variables are often projections, and so are not taken directing from these sites. While this was true for 2000 data, the current data use 2005 data and may be projected forward. Population estimates come from the United Nation and are periodically adjusted based on assumed growth rates and new data from the United Nation.

    Some growth estimates are quite different, but these are more open to interpretation. For data where the World Bank and United Nation are incomplete, such as Internet use or AIDS cases, the WCD diverges greatly. The WCD does not list missing data for any country and its methods are unclear.

5. For all comparisons of percent nonreligious, the WCD's atheist and nonreligious categories were combined to be consistent with other data sets. The WCD's Hindu and Jain categories were also combined for the analysis.

6. Although the range of estimates does not vary as much as the other countries mentioned above, one reviewer noted that data on Nigeria in the WVS have sampling and coding problems. Nigeria has had a history of social disorder, difficulty with tension among its hundreds of ethnic groups, and a significant proportion of those following indigenous and possibly syncretic religions.

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