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Impacts of Religious Beliefs on Environmental Indicators

Is Christianity More Aggressive Than Other Religions?

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Abstract

In this paper, the authors examine whether the more environmental-aggressive attitude of Christianity suggested by Lynn White (1967) could be sustained based on environmental indicators. The religious beliefs were obtained from a World database on religious practices, and the environmental variables from the Environmental Performance Index. Several controlling factors were generated to decouple the influence of religious traditions from other external variables, such as economic wealth or governance. The analysis was done worldwide at country level and for the African continent

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at provincial level. The results of our analysis demonstrate opposite trends to White's conclusions, since Christian territories, both at country and provincial level, had better environmental indicators than territories dominated by other religious traditions, particularly compared to Muslim-dominant areas. Religious practice showed little explanatory power regarding environmental performance for all religions, although Christianity showed a higher positive correlation. Environmental performance of countries in all religious traditions showed a strong dependence from other controlling factors, particularly the human development index and the per capita income.

Keywords

religion – Christianity – environmental indicators – environmental performance index

1 Introduction

A better understanding of factors behind environmental concern of individuals is critical to promote more efficient environmental policies. Different studies have tried to identify variables that either foster or prevent environmental-friendly attitudes. In one pioneering study, age, education, and political ideology were found to be "consistently (albeit moderately) associated with environmental concern" (Van Liere and Dunlap, 1980, 192). In a recent review paper, Gifford and Nilsson (2014) identified 18 variables, associated with environmental concern. The role of religion among those variables was considered relevant, but it was not clear whether more religious practice implied more environmental concern or less.

In principle, religious beliefs should be a strong motivation of environmental concern, as religions provide a cosmological view on how humans should relate to other creatures (Tucker and Grim, 2003). Even more important, religious practices foster a moderate living, restricting consumerism. The argument in Lynn White's paper (1967) suggests that Judeo-Christian tradition is behind environmental degradation, by promoting the idea of human dominion over all other creatures. White emphasized the contrast of this Biblically anthropocentric consideration of Nature with other religions that would favour a more benign attitude towards the environment. The thesis of White has been answered from different disciplines, emphasizing historical evidence of Christian conservation practices and providing other theological arguments that sustain a more eco-friendly interpretation of the Bible.

We do not intend to extend this theological discussion, but rather will try to assess the hypothesis of White based on environmental indicators. If Christian societies were more aggressive towards Nature, they should have poorer environmental performance than those with different religious traditions. If this is not the case, White's hypothesis should be rejected based on quantitative evidence.

Different authors have researched the role of religious beliefs in environmental conservation (Hagevi, 2014; Hand and Van Liere, 1984; Hayes and Marangudakis, 2001; Minton et al., 2015; Morrison et al., 2015; Woodrum and Hoban, 1994). These studies were based on surveys conducted in Western countries, where Christianity is the dominant religion, although differences between Christian denominations were evidenced; particularly among those having a more literal interpretation of the Bible (some Evangelical churches), which were found to have less environmental concern than Catholics or Orthodox communities. However, previously distinguished research does not assess whether Christianity is more or less environmentally friendly than other major religions, such as Islam, Buddhism or Hinduism.

To carry out our assessment, we first needed to select a sound set of environmental indicators, then a reliable source of religious beliefs, and finally a statistical analysis that would provide an objective comparison. Finally, we wanted to decouple the impact of religion from other factors affecting environmental performance. We planned to carry out this analysis at two different geographical scales: at country and provincial levels. The first approach aims to analyse the world-wide spatial diversity of the relations between religion and environmental indicators. The second tries to compare more similar territories, while mitigating the external effects of very diverse governance or socio-economic conditions. This regional analysis was focused on the African continent which includes contrasting religious traditions. We extended in this paper a previous analysis we performed a few years ago (Chuvieco, 2012). In that case, we compared countries with similar economic indicators. Now, we consider all countries, update the set of controlling factors, and include a more detailed spatial analysis, based on provinces for the African continent.

2 Methodology

2.1 *Religious Beliefs*

Religions are both cultural traditions and personal choices. A significant part of the cultural heritage of any society is related to their religion traditions, which are evidenced in art, feasts, food and many other social manifestations.

However, religions are also part of the inner individual sphere, which affects personal values and behavior habits. We can identify the dominant religious tradition of most countries, but it is difficult to quantify religious beliefs, as the range of religious commitment among single individuals may be very diverse. Obviously, the impact of religion on personal habits very much depends on the degree of belief of each individual. If a Hindu is a strong believer s/he will most probably be vegan, as it is a direct consequence of their cosmology; but not all Hindu active believers are. For instance, in India 79.5% of people are likely to be Hindus, but only 35% are estimated to be vegans (Key et al., 2006).

Several databases on religious beliefs are available, but very few in fact include religious practice. For this analysis, we used data from *The Global Religious Landscape* (Hackett and Grim, 2012), which provides the proportion of adherents to major religions by country in 2010. The religious groups included were: Agnostic or Atheist (AgnAth); Christian, Muslim, Hindu, Buddhist, Folk (indigenous beliefs) and Other (including Jewish, Shintoist, Sikhs, Jainist, etc.). For part of our analysis we have used the dominant religion in each country (the one with the highest proportion of believers), while in other cases we have used the full range of proportion of believers (i.e. % Christians in all countries). The former is a categorical variable, while the latter is an interval-scale variable that can be used in regression or correlation analysis.

2.2 *Environmental Indicators*

Environmental indicators (EI) have been proposed in previous decades as an objective way to measure the state of the environment (Gabrielsen and Bosch, 2003; Smeets and Weterings, 1999). Most are quantitative metrics that try to measure a certain variable of environmental quality. For instance air pollution can be measured by density of small-particle concentration (PM2.5), or forest condition by deforestation rate (changes in forest from time 1 to time 2 divided by the forested area at time 1). Following Smeets and Weterings (1999), four types of EI can be identified: Descriptive, aiming to measure what is happening; Performance, measuring how close is a particular territory to ideal targets; Efficiency, addressed to monitor trends; and Global Quality, integrating different dimensions.

We assumed that performance indicators were more related to the practical implications of environmental concern. We selected the Environmental Performance Index (EPI) (Emerson et al., 2010), based on the wide variety of aspects it takes into account and the soundness of the method (Fiorino, 2011). The EPI was developed by the Centre for Environmental Law & Policy of Yale University, the Centre for International Earth Science Information

Network (CIESIN) of Columbia University, the World Economic Forum, and the European Joint Research Center (JRC). Different modifications have been made since the first release of this index. We have used the 2014 edition, which includes 19 indicators, grouped in different subcategories and finally in two large categories: Environmental Health and Ecosystem Vitality. All indicators are scaled from 0 to 100, considering 100 as the ideal situation. (Data was downloaded from the EPI website: http://epi.yale.edu/epi, last accessed November 2015).

We built a geographic information database (GIS) with the EPI data and the controlling factors. Country boundaries were downloaded from the Global Administrative Areas database (http://www.gadm.org/, last accessed November 2015) to link statistical analysis and cartographic representation.

2.3 *Controlling Factors*

In addition to environmental indicators, we generated a database of controlling factors. The goal was to decouple the effect of religious beliefs from other variables that also affect environmental performance. Several papers have analyzed the explicative factors of the EPI (Fiorino, 2011; Gallego-Álvarez et al., 2013; Gallego-Alvarez et al., 2014), showing the relevance of economic development to explain the spatial variation of final EPI values. Other authors have emphasized the relevance of governance conditions for environmental quality, even with higher importance than economic aspects (Farzin and Bond, 2006; Fredriksson and Wollscheid, 2007). Democracies are commonly more concerned about public awareness of environmental problems, particularly with air or water pollution, and tend to be more efficient for solving them than autocratic regimes. Finally, other authors have shown the importance of education and infrastructure conditions on environmental concern, and therefore we have also considered as controlling factor an integrated index of human development.

To consider these aspects in our study, we have used different variables that were accessible globally at country level. For taking into account economic development, we have used the following variables:

- Per capita Gross Domestic Product (GDPCAP), measured in dollars by The World Bank (2014).
- Per capita use of energy (KgOilCap), measured in equivalent Kg of oil divided by total population. This variable was derived from World Bank data (2014).
- Per capita emissions ($KgCO_2Cap$), calculated by dividing the country's total emissions in Kg of CO_2 by total population. Data was downloaded from the Energy Information Administration (EIA, 2015).

In relation to governance, we used the Economist Intelligence Unit's Democracy Index (DemocIndex), which measures the level of democracy worldwide in 2014, on a scale of 1–10 based on five indicators: Electoral Process and Pluralism, Functioning of Government, Political Participation, Political Culture, and Civil Liberties (Burnett et al., 2015).

Finally, the integrated human development was based on the Human Development Index (HDI) proposed by the United Nations (2014). The index is based on four indicators: Life expectancy at birth, Mean years of schooling, Expected years of schooling, and per capita Gross National Income (GNI). A modified version of this index, named the Inequality-adjusted Human Development Index IHDI (UNDP, 2014) has been recently proposed.

2.4 *Continental Study*

A more detailed approach to analyze the spatial relations between religion and environmental indicators was carried out using Africa as a test continent. In this case, the geographical unit for analysis was the provincial level. This option reduced the impact that country generalization may imply. In addition, comparisons were made with territories of similar levels of wealth and governance conditions, and even more relevant with countries that restrict their environmental impact to their own land, as most of them have never colonized other territories.

On the negative side, moving down to provincial level created problems of data availability. For religious practices at provincial level, we used the World Religion Database (Johnson and Grim, 2015). Generating EPI values was not possible as many of EPI components are only available at country level. At least we tried to obtain some of the indicators included in the EPI2014 index. More specifically, we searched for spatial databases that may be used to measure at least the two main components of the EPI: Environmental Health and Ecosystem Vitality. We did not merge both components, as it would not be very meaningful to create a synthetic EPI with just two variables.

For the environmental health aspect, we selected the concentration of fine particulate matter in the atmosphere (PM2.5), used by the EPI as an indicator of environmental pollution. We extracted this variable from the same source as the EPI (van Donkelaar et al., 2015). The raw data were averaged from the original spatial resolution of 10 km × 10 km to each of the 727 African provinces using the population density as a weighing factor. The limits of African provinces were extracted from The Global Administrative Areas database version 2.8 (Hijmans et al., 2015).

To account for the Ecosystem Vitality component of EPI we have used the deforestation rate, one of the EPI original indicators, but in this case using a

much higher resolution source than the original EPI. Instead of coarse resolution satellite data, we have used the first analysis based on medium resolution data (Landsat TM: 30x30 m pixel size), published by Hansen et al. (2013). The data includes the areas deforested between 2000 and 2014. Deforestation was defined as "*a stand-replacement disturbance, or a change from a forest to non-forest state*" (2013). The data were encoded as either 1 (loss) or 0 (no loss). Average values for each province were computed to estimate the proportion of provincial area that had been deforested. In order to obtain the relevance of this forest loss we computed the ratio of deforested area versus the total forested area of each province, as measured by the Globcover2005 land cover map (Arino et al., 2007). To avoid biasing the results with areas where forest had low significance, we selected only provinces with more than 8% of forest cover.

As controlling factors, we have used a mixed variable generated as a ratio of the per capita income and population density. This intends to take into account the different levels of income related to the areas with higher population density. The variable was called GDP/km^2, and it tries to measure the spatial variation of wealth. This variable was used to better compare pollution levels for provinces with different economic and population developments. We used only the upper half of the provinces, as those provinces should be more comparable in terms of their performance for controlling pollution levels.

2.5 *Statistical Analysis*

Statistical analysis of the input datasets was done independently in the global and the continental study sites. Basic descriptive parameters (mean, standard deviations) were calculated to analyze conditions for different religious groups. Boxplots were created to study the variations of EPI values for groups of countries with different religious traditions, as well as African provinces, assuming the dominant religion as the grouping criterion.

At country level, relations between the EPI, the religious variables and controlling factors were based on the computation of Pearson correlation coefficients. Finally, a linear multivariate regression model was computed to estimate EPI values from controlling and religious variables.

For the regional African study, boxplots for the two EPI variables were obtained using dominant religion as controlling factor. Kruskal Wallis non-parametric multivariate test (Kruskal and Wallis, 1952) were used to test whether there were significant differences in pollution and deforestation between different religious groups.

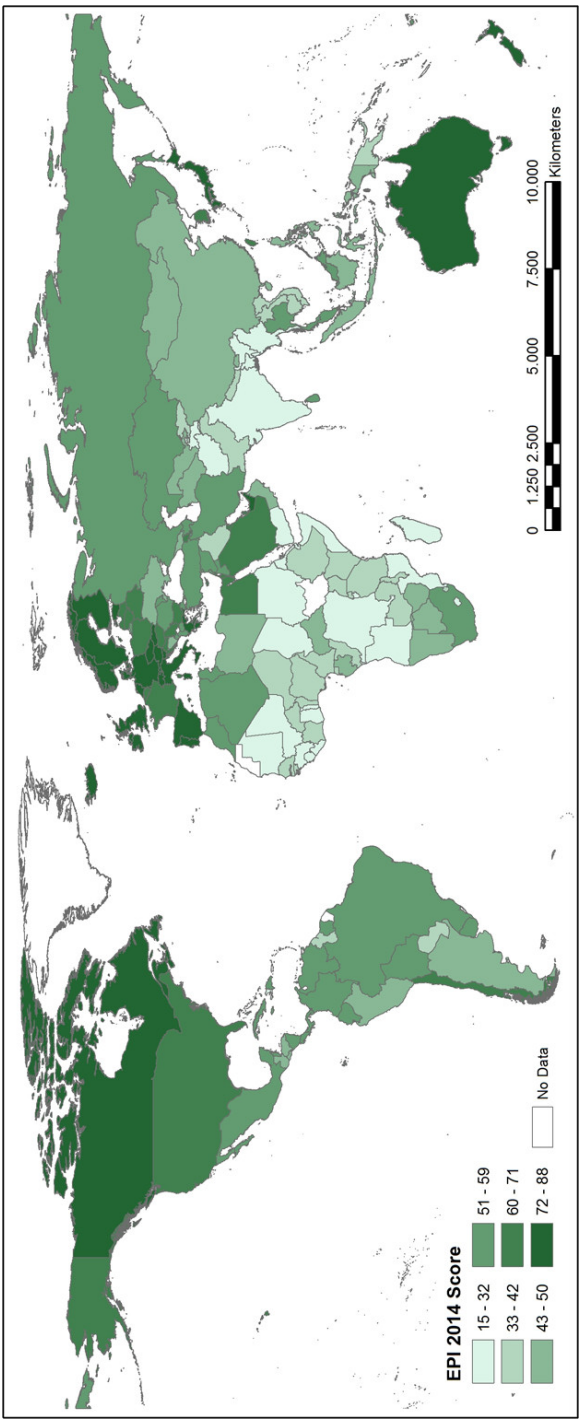

FIGURE 1 *Geographic representation of the EPI 2014 values*

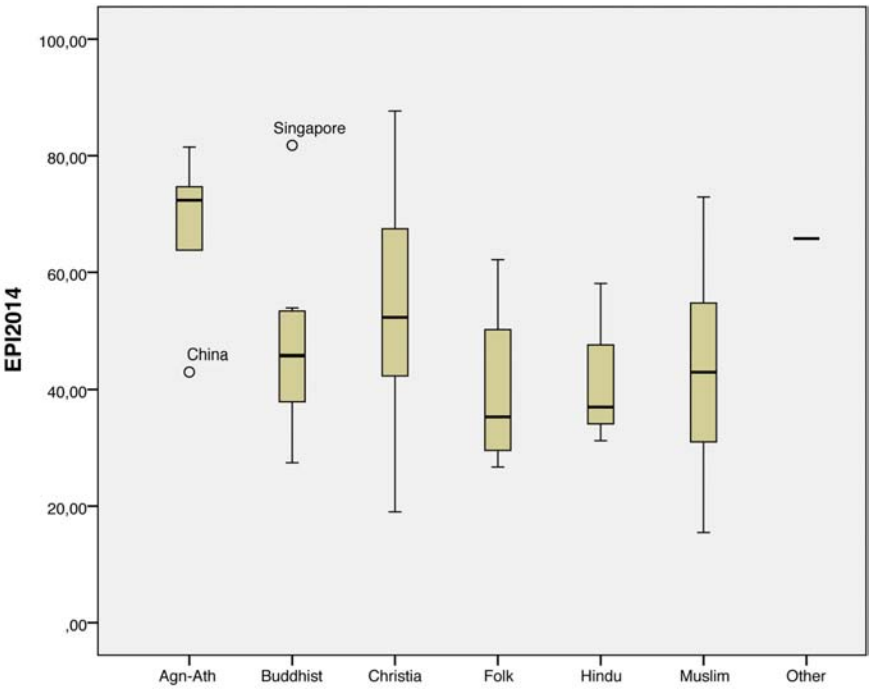

FIGURE 2 *Boxplots of EPI values at country level classified by dominant religion*

3 Results

3.1 *EPI and Religion Distribution*

Figure 1 shows the geographical distribution of the EPI values for 2014. As it can be observed, the highest values of environmental performance are found for developed countries, particularly Europe, Canada and Australia-New Zealand. Intermediate values were found in Latin America and some Asian and North African countries, while most African and SE Asian countries present the lowest scores. High EPI values imply a combination of good conditions for both the environmental health indicators and those associated to conservation of ecosystems. The former are more related to national investments in sanitary conditions (water or air pollution), while the latter are more associated to abundance and conservation status of environmental resources (forest, fisheries, agriculture, biodiversity, etc.).

In terms of relations between EPI values and religious majorities, figure 2 includes a boxplot chart that illustrates the great diversity of EPI values for all dominant religions. The Agnostic-Atheist (AgnAth) group is one of the smallest, with only five countries (Czech Republic, Estonia, Japan, China and

TABLE 1 *Pearson r coefficients between EPI values, religious practice and controlling factors*

	ENVHLTH14	ECOSYST14	EPI2014
AgnAth	.375**	.448**	.462**
Christian	.165*	.196**	.203**
Muslim	−.224**	−.333**	−.314**
Hindu	−.077	−.037	−.063
Buddhist	−.073	.004	−.037
Folk	−.224**	−.099	−.178*
Others	.139	.053	.106
KgOilCap	.542**	.391**	.508**
$KgCO_2Cap$	.518**	.371**	.492**
DemocIndex	.616**	.542**	.637**
logGDPCAP	.901**	.669**	.873**
HDI	.945**	.640**	.882**
IHDI	.948**	.696**	.903**

(*) significant at 0.05 and (**) significant at 0.01

South Korea), and includes the highest median. The exception to this group is China, with much lower EPI values. Buddhist countries show a great dispersion, in spite of being only eight countries, with very high (Singapore) and very low (Myanmar and Cambodia) EPI values. Christian countries have the highest median, after the AgnAth group, with a high diversity of EPI scores. The 112 Christian countries include from the very poor ones (Uganda, Burundi) to the wealthiest (Austria, Luxembourg, Finland). Hindu dominance is only found in three countries (India, Nepal, and Mauritius). They have the lowest median EPI values. Folk countries have the second lowest median values, and they also include a few countries (Madagascar, Benin, Viet Nam and Taiwan). Muslim countries are more diverse, and include 46 countries mostly in Africa and Asia. The Other religions group have only one country: Israel, being the majority Jewish.

3.2 *Controlling Factors*

Table 1 includes results of the Pearson r correlation for those considered, as well as for the religious groups. In this case, we have taken into account the proportion of believers in each country and religion, not just the dominant religion.

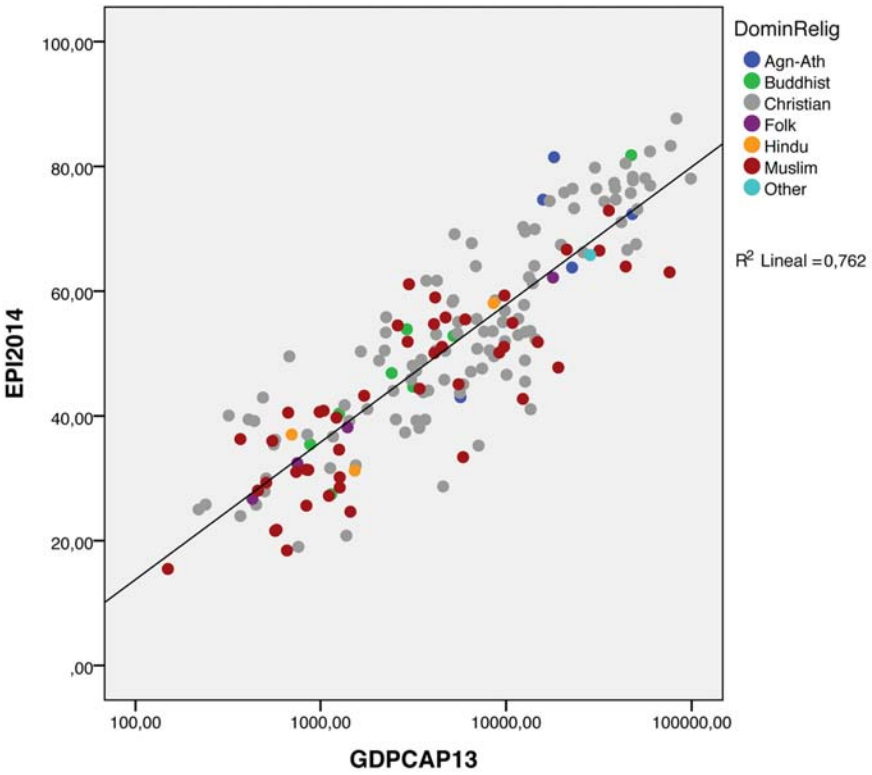

FIGURE 3 *Scatter plot of per capita income (logarithmic scale) and EPI values for different dominant religions*

Significant positive correlations (but <0.5) were found between EPI scores and proportion of Agnostic-Atheist, both for the final EPI values and its two components (environmental health, ENVHLTH, and ecosystem vitality, ECOSYST). This means that the more proportion of Agnostic-Atheist, the higher the EPI values, although in this case there are many countries with very low proportion, particularly those with low GDP/Cap. For other religious groups, only Christianity showed positive correlation, lower than the former group, but still highly significant for ECOSYST and EPI scores, with lower significance for ENVHLTH. Islam presented the highest negative correlations, all significant at 0.01. Folk was the second lowest, particularly in health indicators, while Hindu and Buddhist showed values close to 0 and correlations were generally not significant.

The controlling factors had much higher correlation values with EPI values than religious groups. The highest r values were obtained for the HDI (fig. 4) and IHDI, particularly in environmental health (r>0.94). Similar trends were

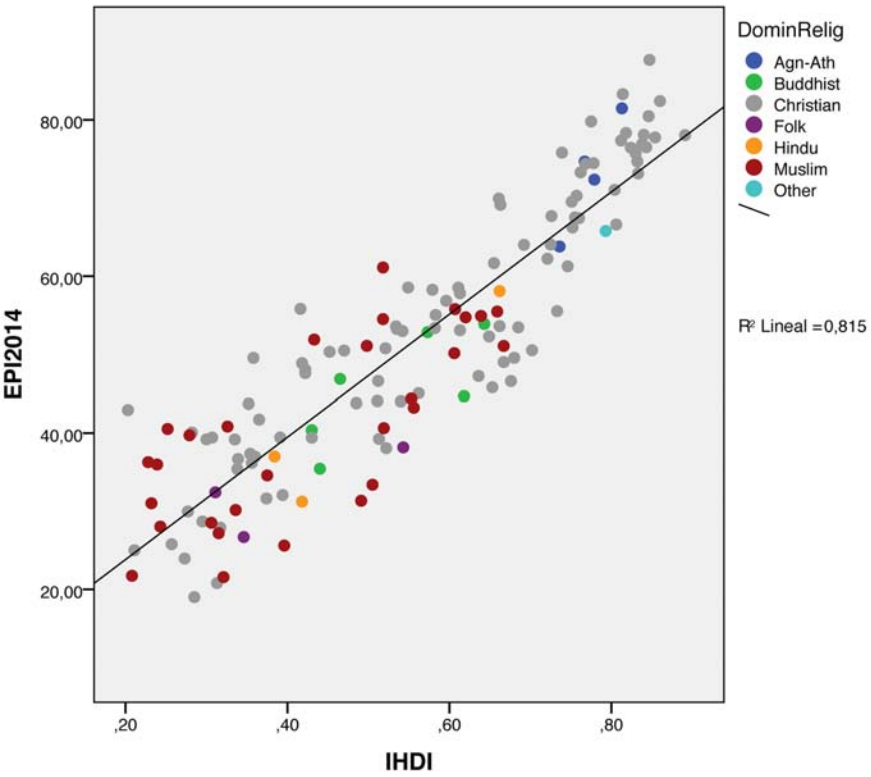

FIGURE 4 *Scatter plot of Human development index and EPI values for different dominant religions*

observed for the per capita income (GDP/CAP) (fig. 3). This variable was transformed to logarithmic scale to compute linear correlations, as the original scale showed exponential trends between income and EPI values. The selected governance indicator (Democindex) showed positive and significant correlations with the three EPI indicators, although lower than for GDPCAP and HDI. Finally, in terms of energy efficiency (both production and emissions), the correlations with EPI values were lower than for the former variables, although still significant.

When only the dominant religion was considered, the correlation between EPI and GDPCAP showed interesting trends (table 2). It is particularly remarkable that Agn-Ath countries showed the lowest correlation, meaning that the level of wealth is less related to EPI in those countries than in religious groups. Countries with dominant Folk and Buddhist religions have the highest relation between wealthiness and environmental performance, while the lower values were found for Muslim countries.

TABLE 2 *Pearson r coefficients between per capita income (log scale) and EPI values for groups of countries*

	R^2 values	Slope
Agn-Ath	0.6862	0.0154
Buddhist	0.9582	0.0323
Christian	0.8647	0.0342
Folk	0.9999	0.0459
Hindu	0.8701	0.0342
Muslim	0.8433	0.0367
Global	0.8730	0.0345

3.3 *Regression Model*

We finally computed a multiple regression model with the EPI as dependent variable and all the controlling factors plus the percentage of religious believers in each country as independent ones. The model was built using a forward selection method. This implies that variables are included in the model in different iterations, from the most to the less explicative. The model stops when a new variable does not explain at least 5% of the remaining unexplained variance (information).

As it was expected, the output model only included controlling factors of EPI, as they were the most explicative in the correlation analysis. The final model was:

$$\text{EPI} = -13.206 + 51.082^{*}\text{IHDI} + 9.913^{*}\log\text{GDP/cap}$$

This model implies that EPI values can be well estimated by the Human Development index and the per capita income, both with positive contribution to the model (the more HDI and GDP/Cap, the more EPI values). The variance explained by the model was 83.6%, meaning that only 16.4% of the original EPI variance remained unexplained.

Those variables not included in the model imply that they had little explanatory power. The coefficients of those excluded variables however can provide some insights on their potential contribution to the model (table 3). When they have positive beta values, they would contribute to increase the EPI values estimated by the model (therefore, they are positively related to the output),

TABLE 3 *Religious group variables excluded from the regression model*

	Beta values	t	p	Partial correlation
AgnAth	.053	1.210	.229	.117
Christian	.080	1.970	.051	.189
Muslim	–.055	–1.319	.190	–.128
Hindu	–.043	–1.084	.281	–.105
Buddhist	–.038	–.957	.341	–.093
Folk	–.036	–.879	.382	–.085
Others	–.037	–.946	.346	–.092

being negatively related otherwise. As shown in table 3, all religious groups had negative coefficients to enter the model, with the exception of Christian and Agnostic-Atheist categories that showed positive values and partial correlation.

3.4 *African Results*

Figure 7 shows the distribution of dominant religions in African provinces. The vast majority are either Christian (279) or Muslim (152), with a minor representation of Ethnical religions (33) and Hindus (7). The division between Christian and Islamic Africa is mostly latitudinal, with the exception of Ethiopian provinces that are a Christian "island" within predominant Muslim region. Ethnical religions are dominant in Madagascar and small provinces in Gulf of Guinea and Tanzania. Hindus are only a majority within predominantly Muslim regions in Mauritius and other small islands.

In terms of environmental health, the average concentration of small particles in the atmosphere (PM2.5) had higher values in the Northern provinces, particularly in Egypt, Libya and Morocco, along with another sector in Central Angola and Congo (fig. 6). The former should be related to industrial and urban pollution, while the latter seems more related to biomass burning, which is very extensive in this region (Giglio et al., 2013).

For deforestation, the highest values were found in the Northern Tropical fringe, particularly in Ivory Coast, Ghana, Mali, Sierra Leone and Burkina Faso, with a minor focus in the Atlas region of Morocco, Algeria and Tunisia.

In terms of dominant religion, the atmospheric pollution shows higher median values for Muslim provinces (fig. 7), mostly located in Northern African countries. A good number of these provinces exceed the interquartile range, with extreme values that were not found in Christian or Ethnic religions.

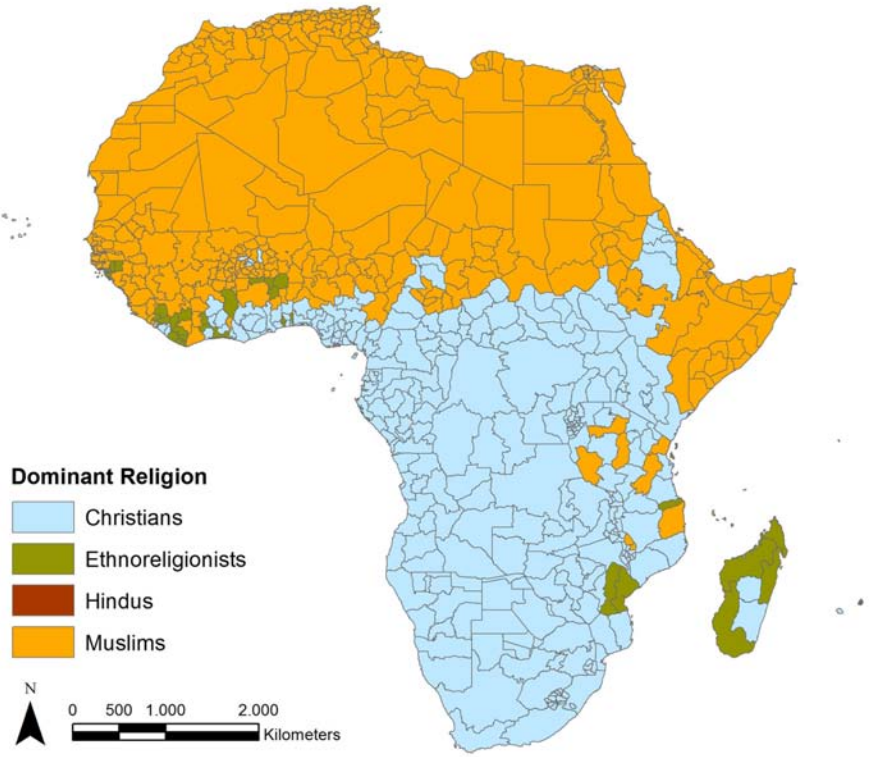

FIGURE 5 *Dominant religion in African provinces considered for this study*
SOURCE: HACKETT AND GRIM, 2012

Christian provinces had higher pollution rates in Southern tropical regions, unrelated to industrial production. This is shown in the box plot, which only includes the higher half of per capita income.

In terms of deforestation rates (fig. 8), Christian provinces had lower median values and interquartile range than other religions, although some of them showed extreme values (even higher than 40%), particularly those located in the Gulf of Guinee. Ethnic religion provinces also showed some extreme values in the same region. Hindus had the highest median values of deforestation, while Muslims had an intermediate value, but still with many provinces above 20% of deforestation.

In both comparisons (PM 2.5 and deforestation), the Kruskal-Wallis test indicates significant differences among religions groups, with high significance level ($p<0.01$).

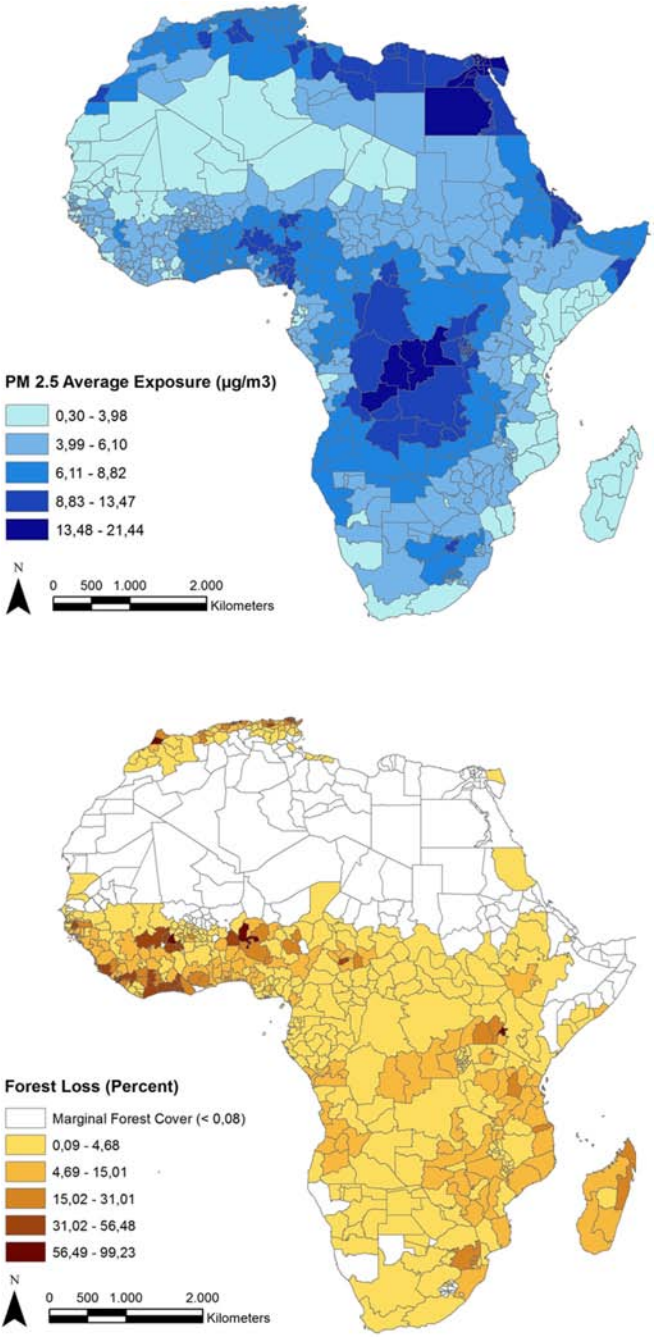

FIGURE 6 *Average exposure to small atmospheric particle (above) and average forest loss (below) for African provinces (in this case, only provinces with more than 8% of forest cover have been included)*

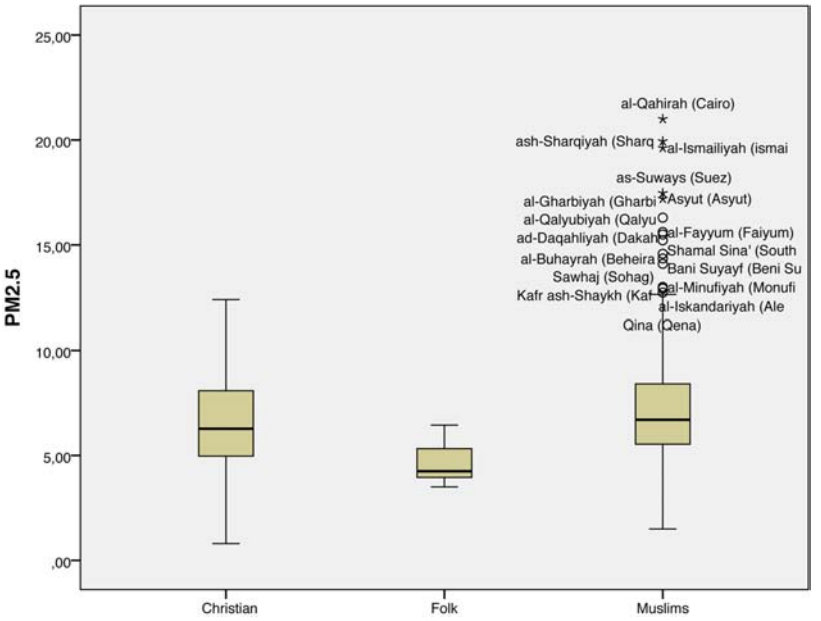

FIGURE 7 *Boxplot charts of atmospheric pollution (PM2.5) for provinces with different religious majorities. Only provinces in the upper half of the per capita income have been included.*

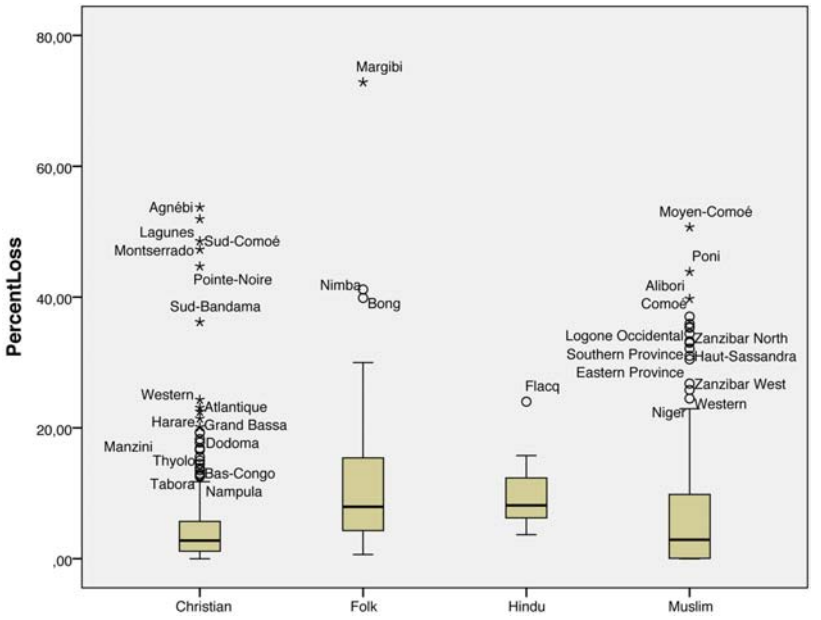

FIGURE 8 *Boxplot charts of deforestation rates (%) for provinces with different religious majorities. Only provinces with more than 8% of forest cover have been included.*

4 Discussion

We have presented a set of indicators measuring the environmental performance of different territories and the relation of major religious traditions with those indicators. Globally speaking, the relevance of religion to explain environmental quality is poor compared to other controlling factors, such as economic or social development. From this point of view, we can conclude that no religion can be considered statistically more friendly or aggressive to the environment, at least in the consideration of effective policies that improve environmental quality. As other authors have pointed out, religion is only a factor, among many others, affecting people's level of environmental concern (Gifford and Nilsson, 2014; Van Liere and Dunlap, 1980); and therefore, religion should be associated with all others to explain final environmental performance. On the other hand, concern does not necessarily imply good practices (Kormos and Gifford, 2014). Even if a religion is in favor of strong environmental commitment, its actual impact on people's habits may be limited, as poverty strongly restricts individual choices. In addition, believing in a particular religion is not a binary variable, as beliefs may imply a very wide range of practical commitments; including those that only have sporadic religious practices, and those that are firmly convinced and live accordingly to their moral standards.

These aspects should be taken into account when analyzing Lynn White's hypothesis which accuses Christians of being responsible for a destructive proclivity towards Nature. From our analysis, we can conclude that no evidence exists that Christian territories have poorer environmental indicators than other religions, not even compared to those generally considered the most Nature-centric, such as Buddhism and Hinduism. Both at the national and provincial level, Christian territories' indicators are the highest in terms of both environmental health and ecosystem vitality, with the exception of Agnostic-Atheist countries. However, these are restricted to just five cases and are mostly developed countries.

Quantitative indicators of the environmental performance of Christian territories versus other major religions provide the following conclusions:

1. Christian countries have the second highest median values of EPI among religious groups. Proportion of Christian believers of each country has the second highest correlation with EPI values (after Atheist-Agnostic), being the only religion with a positive correlation. All other religious groups have negative values, being the highest negative for the proportion of Muslim believers.

2. None of the variables associated to the proportion of believers was selected in the final multivariate model, implying that religious affiliation has much less explicative power than other controlling factors, such as HDI and GDP/Cap. Analyzing the partial correlations of excluded religious-group variables, the proportion of Christian believers was found the only one with positive correlation, implying a positive contribution to estimate EPI values. Other religious groups have negative signs, implying a reduction of EPI values even when other controlling factors are considered. As in the previous point, Muslim countries have the most negative contribution.
3. Relations of per capita income and EPI for Christian countries are very high, meaning that they perform well when economic means are available. The same is true for other religions, although Muslim countries have slightly lower values. Agnostic-atheist countries have the lowest correlation in this regard.
4. Analysis at a regional scale in Africa shows similar trends, with Christian territories providing similar average pollution rates than Muslim regions, but with much less extreme high values. In terms of forest loss through deforestation, Christian provinces have the lowest median value, with some extreme cases, but still lower than Ethnic religions and Muslims provinces.

In conclusion, the hypothesis of White (1967), which has been widely criticized from a theological and historical point of view, needs also to be rejected using quantitative indicators of environmental performance, both at country and provincial levels. From a logical perspective, our results cannot conclude that Christianity is more environmental-friendly than other religions, but we certainly can affirm that is not more aggressive than others.

The analysis also shows the modest relevance of main religious traditions to explain environmental performance. At country level, we have observed that none of the large religious groups provided significant explanation of environmental performance, while levels of human and economic development or the countries governance are much more relevant variables.

Further analysis needs to be conducted at more detailed, spatial scales, so that the actual role of religious motivation can be further analyzed. Previous studies demonstrate that religious beliefs can play a significant role in impacting national and provincial levels of environmental concern. However, no clear conclusions are available regarding whether those beliefs make a real difference for adopting good practices and, consequently, for rising environmental indicators.

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