

Understanding correlations between religious freedom and socio-economic backgrounds

CSE 564: Final Project

Arun Swaminathan & Shubham Jindal

Contact Information:

Computer Science Department

Stony Brook University

Email: sarun@cs.stonybrook.edu

Email: sshubham@cs.stonybrook.edu



Abstract

As per Wikipedia, there are 4200 religions around the world. At the same time, religion is an important factor when it comes to a person's functioning in society. Hence, it is important to understand the influences of religion in today's era, defined by the various socio-economic factors. Some developing countries today, are undergoing intricate situations when a religious political party comes into power. But what exactly happens to the status of its citizens? This is an important topic to put further light upon so that future policymakers can take this into account.

Introduction

We want to understand if a person is able to express his religious beliefs, how the socio-economic factors in that region are affected by religion, and in turn how religious freedom is affected by them. Some of the questions which we would like to cover are -

1. Are more crimes committed at places which allow expression of religious beliefs?
2. What is the economic situation of a region based on the citizen's religious preferences?
3. What is the correlation between expressing religious beliefs and the happiness levels of people in that region?
4. How does religious freedom affects other personal freedom such as freedom to trade/establish unions/ speech and whether there is any correlation?

We want to analyze these trends at a global level based on the majority religion in each country.

Dataset

Dataset	Year	No of records	Features
Human Freedom Index	2018	1458 x 123	162 Indicators (Law, Safety,Security,Religion etc.) 2008-2016
World Religion Data 1.1	2019	1995 x 79	Data about religions and adherence 1945-2010.
World Happiness Report	2018	155 x 12	Metric based scores for 155 countries from 0-10. 2013-2016
Religious Terrorist Attacks	2016	29365 x 6	City, Country, coordinates # of people killed/injured, 1960-2010
Global Terrorism Database	2017	1.82M x 135	Terrorist attacks with 45 -120 variables, # fatalities, injuries, weapons used, 1970-2017

We have divided the religions into 9 major categories - Christianity, Islam, Hinduism, Buddhism, Judaism, Shinto, Syncretism, Animalism, No Religion.

Methodology

We have implemented a dashboard to analyze various interactions between the data available. Every religion is colour-coded based on the significance of that colour in that religion.¹

Datasets are shown visually to get a sense of what information they provide using histograms, **donut charts** and **choropleth maps**. We also combined appropriate datasets to find out more insights and view them in a coordinated layout consisting of **stacked area charts**, **box plots**, **heat maps**, etc with filtering for further analysis.

Visualization & Analysis

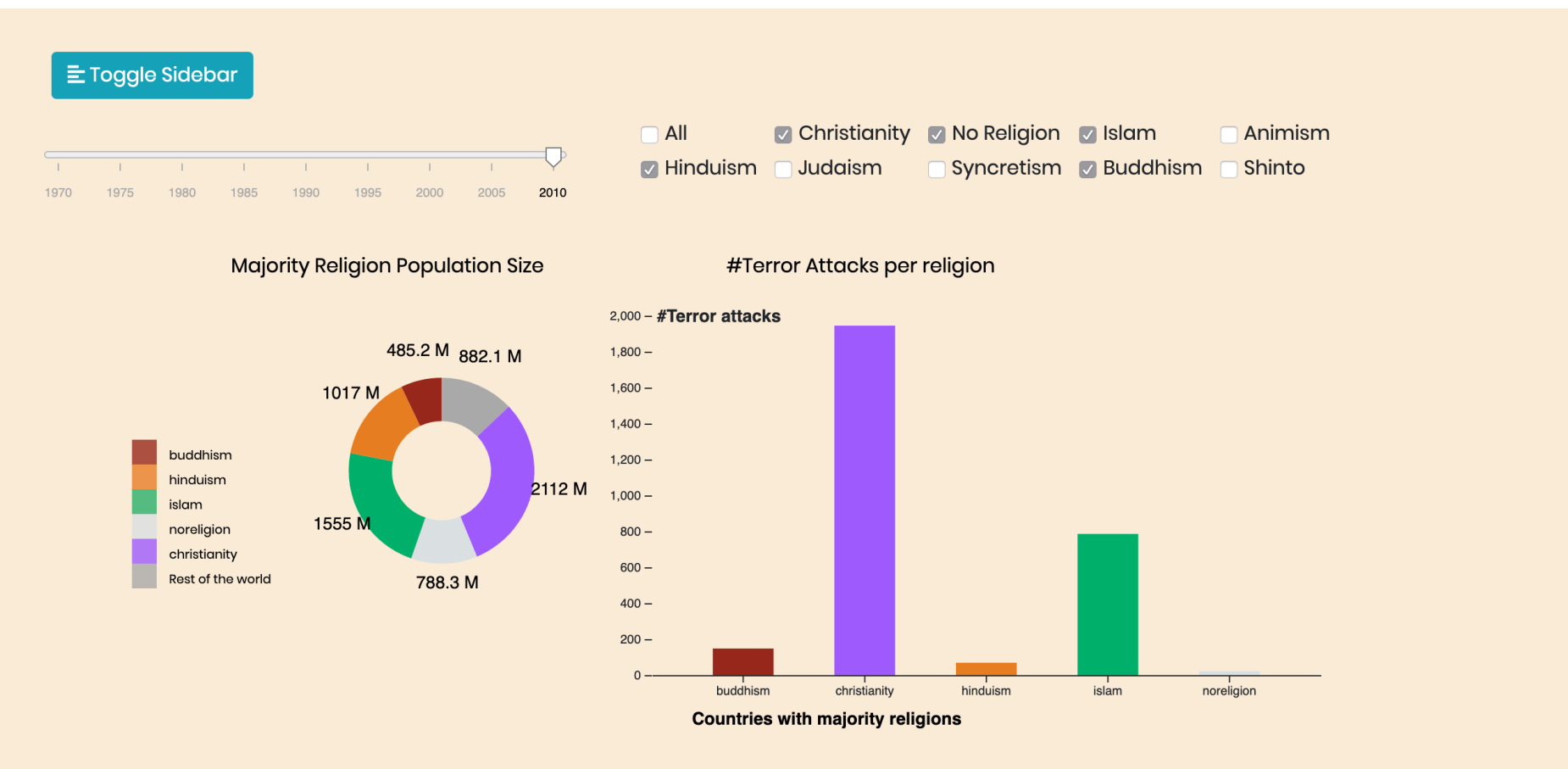


Figure 1: Religious population and terror attacks per religion over the years

Over the years there is a linear increase in the number of terrorist attacks in countries which have Christianity, Islam or Buddhism as their predominant religion. For other religions (Hinduism, Syncretism), we could not find any drastic change even with countries having large populations like India and China.

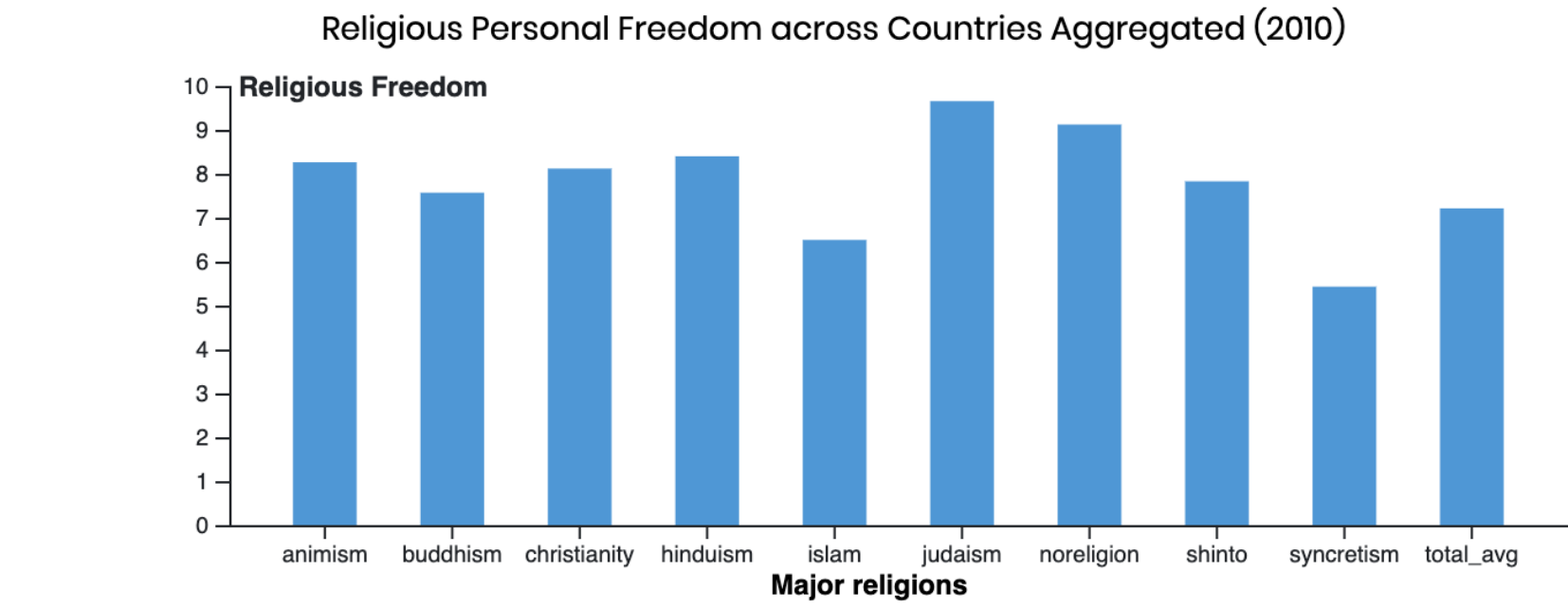


Figure 2: Religious Personal Freedom across Countries Aggregated (2010)

In the above visualization, we can observe the relative personal religious freedom scores across religions. Judaism offers the highest score while Islam and Syncretism score below the Global average.

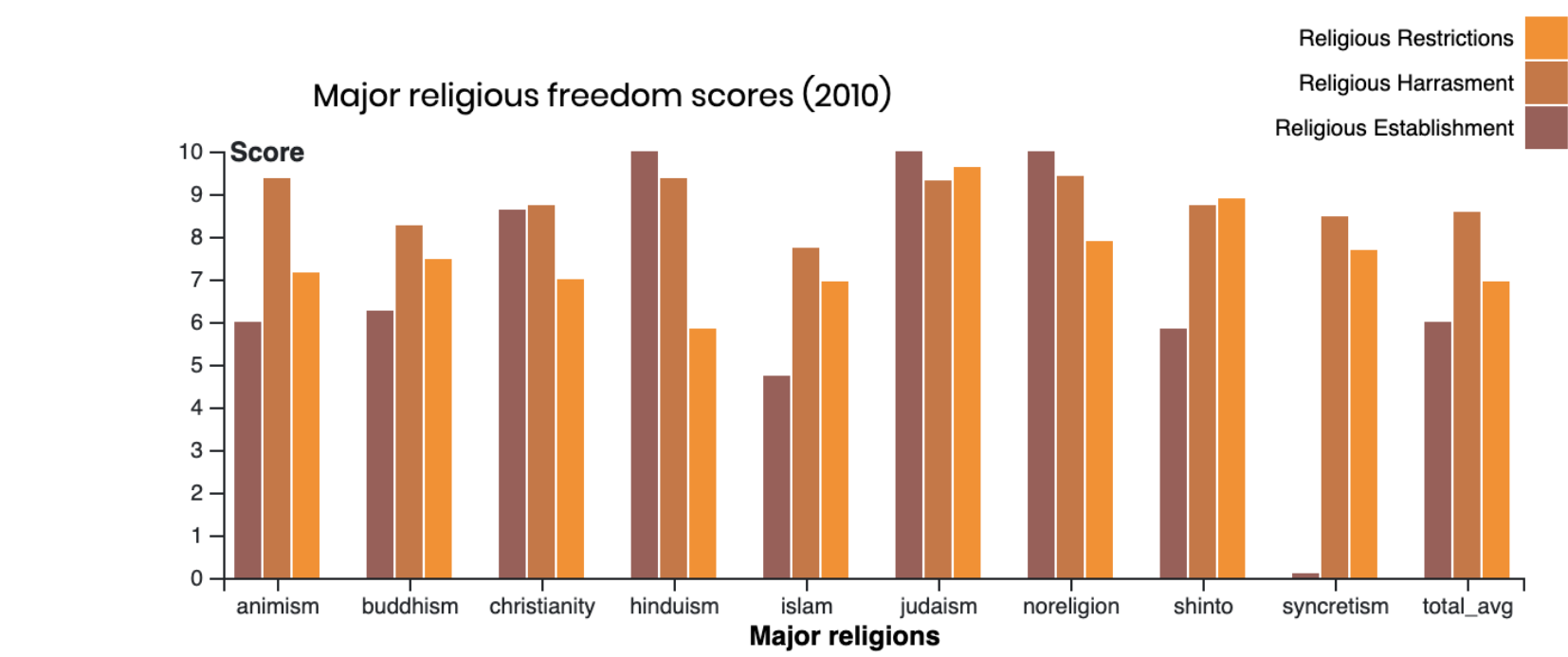


Figure 3: Major Religious Freedom Scores

In the grouped bar chart above we can observe that countries which have their majority religion as Judaism offer least restrictions on the expression of religion, least cases of harassment and least hindrance to establishing religious organizations.

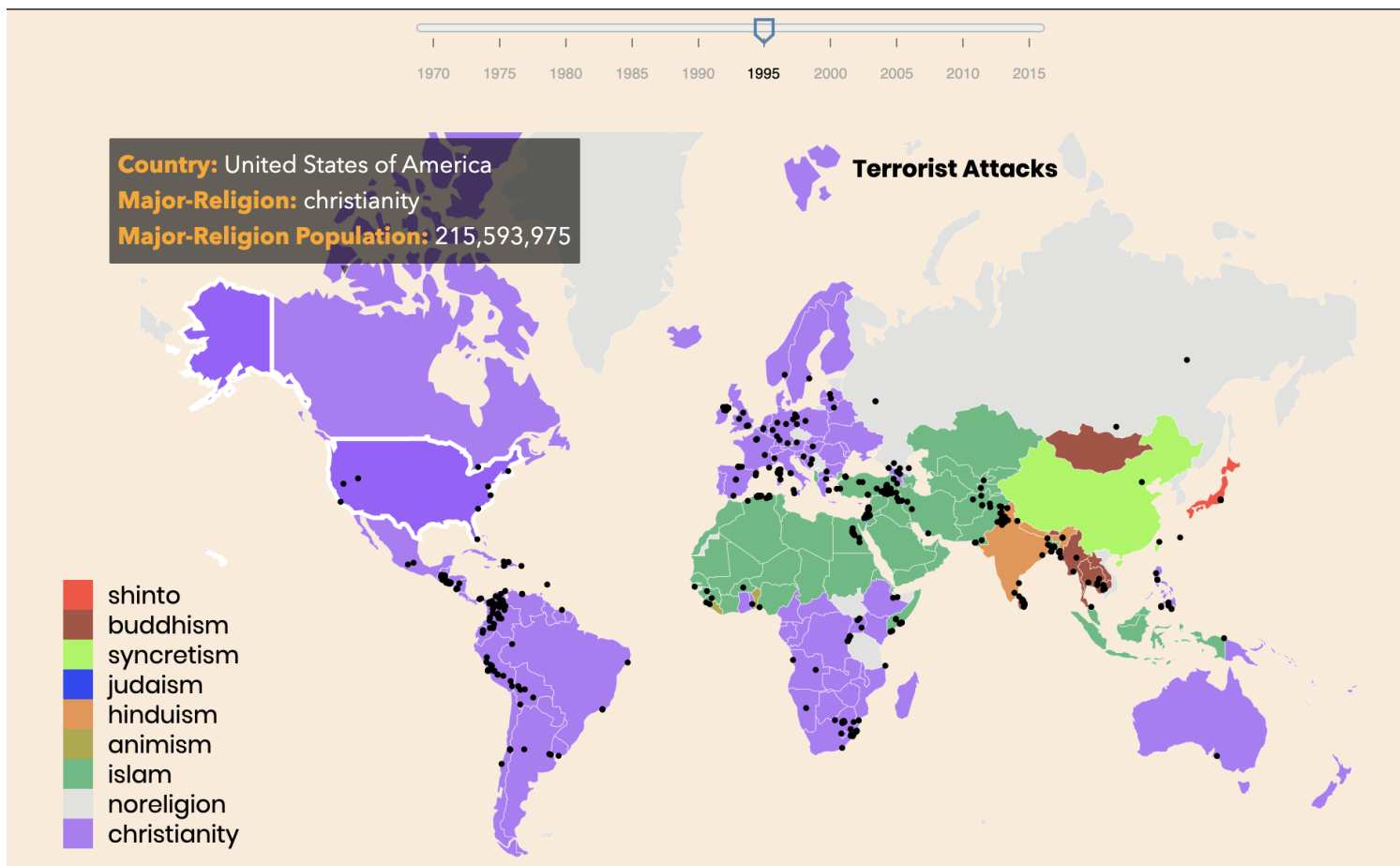


Figure 4: Terror attacks across religions

We plotted terrorist attacks which have occurred since 1970 on the choropleth map with **transition effect** when the time slider is shifted. We can observe how the attack trend shifted from Western countries to the Middle Eastern and then towards Eastern countries from 1970 to 2010. Terror activities targeted countries which were following Christianity and then the pattern shifted to the Countries which predominantly followed Islam.

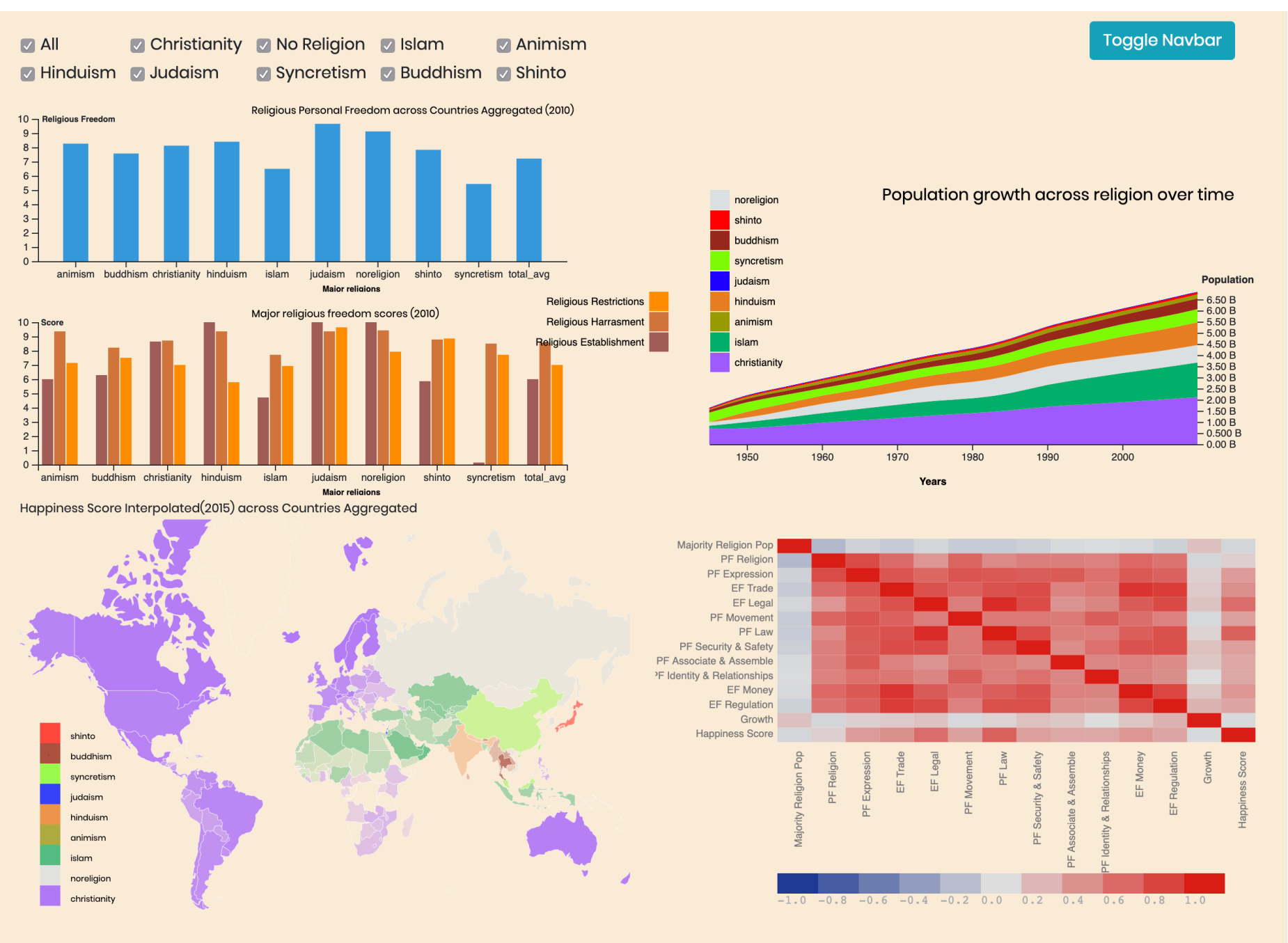


Figure 5: Coordinated view of religious freedom, happiness scores, population growth and economic factor.

The above coordinated layout represents the multiple datasets available as of 2015. We filtered with multiple combinations of religion and found that although the religious freedom score for Buddhist countries is relatively high, the population increase appears to have a negative correlation with economic growth and happiness levels. This is in contrast with religions like Islam and Syncretism which have a positive correlation with growth.

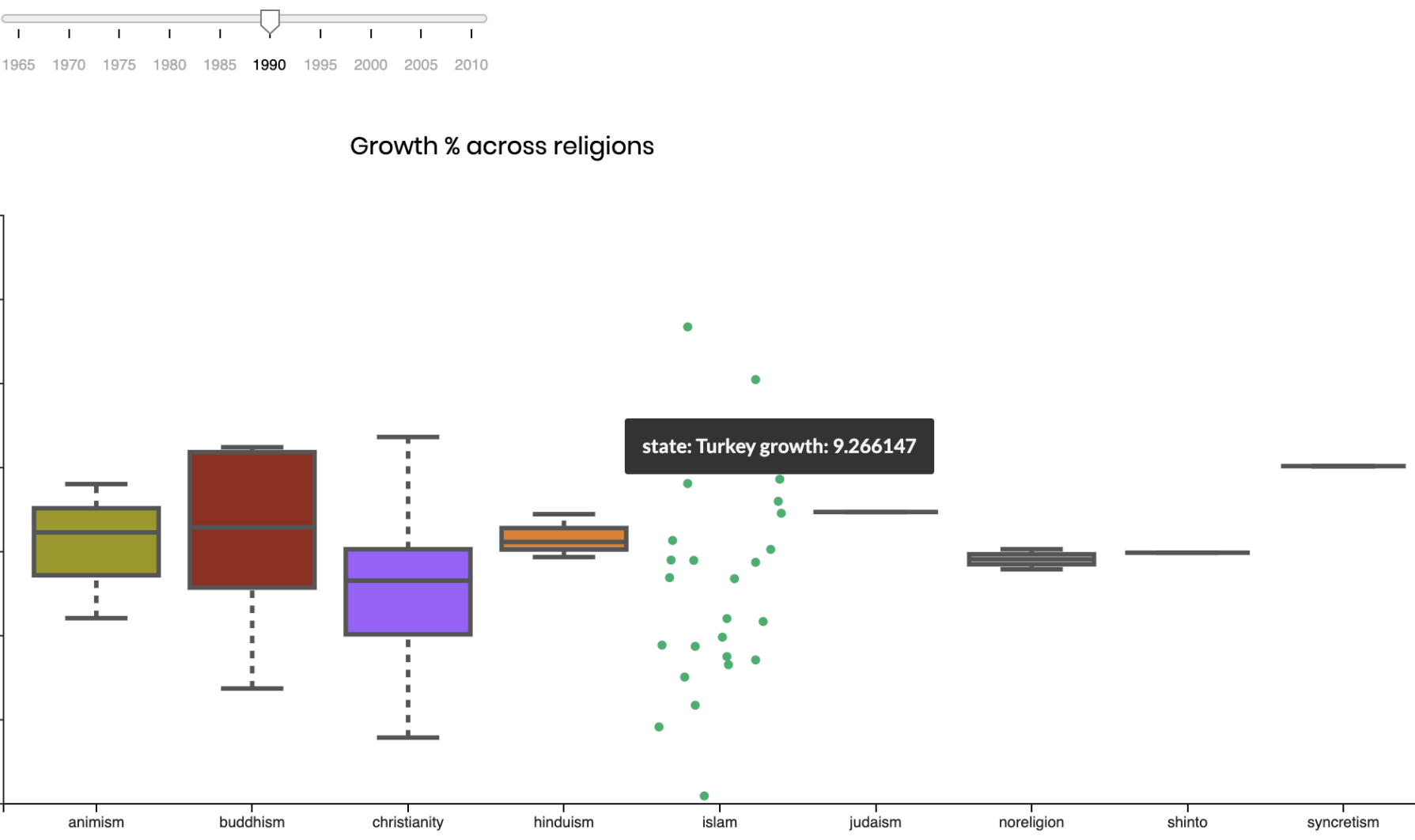


Figure 6: Economic growth of countries across religions with scatter plots

Countries with major religions such as Christianity and Islam have a large standard deviation in growth while other religious countries appear to be growing around the same level.

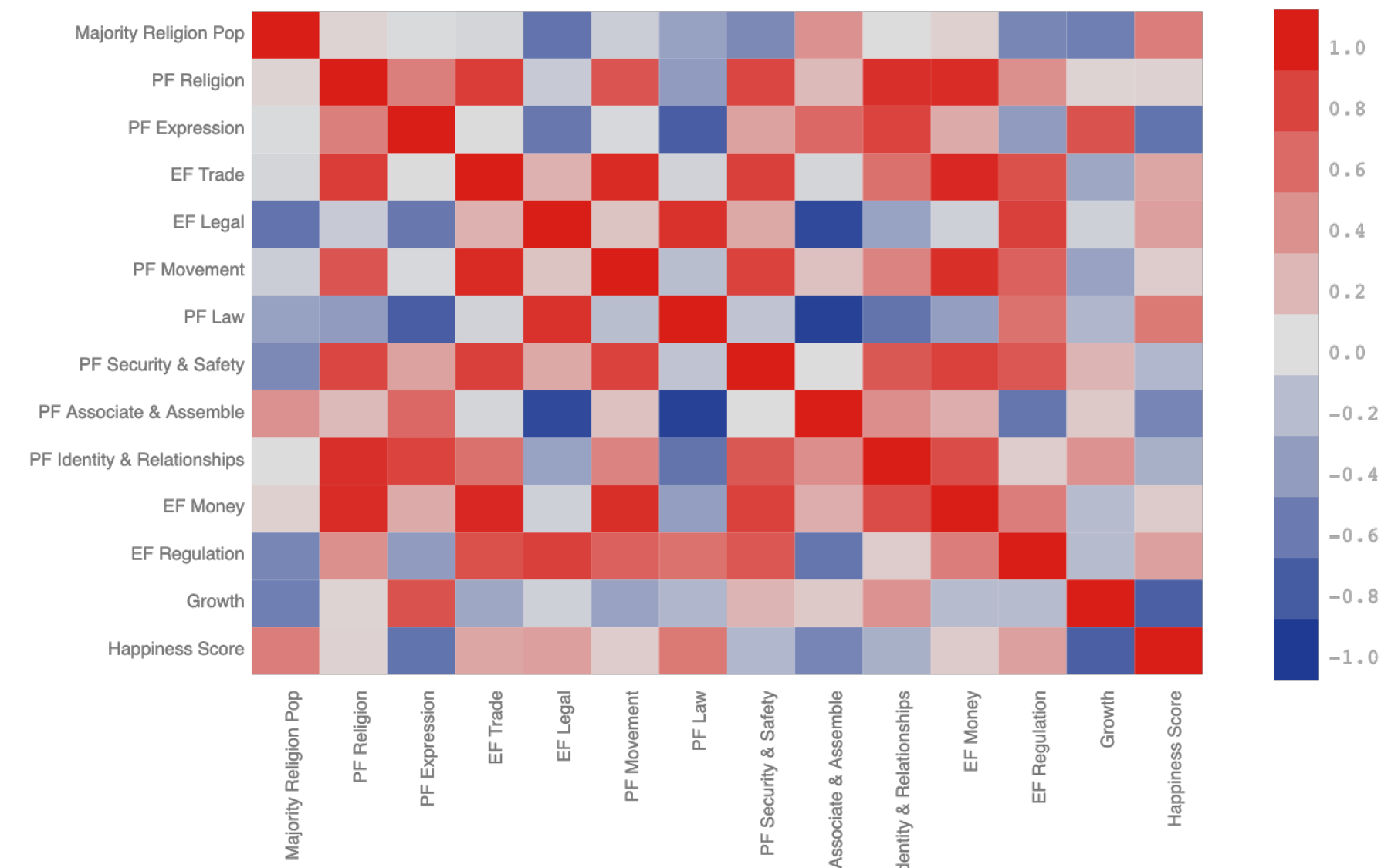


Figure 7: Heat map of correlation between various socio-economic factors for Buddhism

Here we observe that the growth of Buddhist countries is positively correlated with freedom of speech and expression.

Conclusions

Following are some of the major conclusions we could draw from the available datasets.

1. Having religious freedom does not necessarily mean that the people are happy.
2. Global terrorism shifted from Western countries back in the 1970s towards the Middle Eastern countries and then towards South Asian countries.
3. Major religions are having more deviation in economic growth as compared to minority religions.

¹<https://www.sherwin-williams.com/architects-specifiers-designers/inspiration/styles-and-techniques/SW-ART-STIR-COLOR-RELIGION>