

PB310: INDEPENDENT RESEARCH PROJECT

-Study Preregistration-

Study Title: Boundaries of Religious Out-Group Co-Operation in Background Uncertainty

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I. Introduction

Project Design and Contribution to the Literature

This research project aims to examine whether the prosocial effects of religious affiliation – particularly willingness for co-operation – extend to members of religious groups different from one’s own (religious out-groups). Further, it also seeks to understand whether the willingness for co-operation is influenced by political stability, a form of background uncertainty exemplified by high-stakes environments of exceptional risk and uncertainty. To achieve this, the project performs a quantitative secondary data analysis of cross-cultural data from the World Values Survey, the World Bank and Freedom House. This project is important because existing literature has shown that religions serve a significant role in enabling large-scale co-operation by, for example, increasing fairness in social exchange, decreasing in-group tribal competition and reducing rule-breaking behaviours that particularly benefit distant individuals who share similar beliefs (Norenzayan et al., 2014; Purzycki et al., 2016; Ibrahim, 2011). However, it remains unclear if this expanded co-operation scales to members of religious groups different from one’s own especially in the presence of real or imagined conflict. This Independent Research Project, therefore, aims to fill this literature that remains key from both theoretical and practical perspectives. From a theoretical perspective, understanding the extent religious members co-operate with religious out-group members illuminates the functional purposes of religion from an evolutionary perspective: more specifically, the project provides a cross-cultural test of cultural group selection theory that underpins the evolution of co-operative behaviour (this theory will be outlined in detail in the following paragraphs). Indeed in 2005, *Science* listed the origins of co-operative behaviour among one of its top 25 questions for the coming century. From a practical perspective, this research will offer insight into how and why co-operation may be established between nation states, the degree to which co-operation and communal stability is manifested in religiously diverse societies and whether the extent one’s willingness to co-operate is influenced by background uncertainty, namely the effect of political stability.

Theoretical Paradigm: Cultural Group Selection

This research project draws on the theoretical paradigm of cultural group selection. Cultural group selection (CGS) is a model that has been used to explain the evolutionary origins of large-scale co-operative behaviour characteristic of human populations. Broadly, CGS has been applied to co-operative behaviour because of the unique nature of human sociality that other theories could not fully explain. We engage in complex market exchanges, peacefully attend sporting events and donate our organs to those we have never met. However, this sociality raises a unique challenge to our understanding of human behaviour by opposing theories of behaviour driven by self-interest that are commonplace across the social and biological sciences. For example, standard economic theory posits that individuals are utility-maximising agents solely interested in increasing individual utility in the form of hedonistic satisfaction. Similarly, evolutionary biology establishes the notion of ‘fitness’, defined as the reproductive advantage conferred to an organism. However, humans often

behave in ways incongruent with this individual fitness-maximising axiom. Instead, our prosocial behaviour extends beyond kin and reciprocal interactions to co-operation on large-scale, anonymous societies. Thus, CGS attempts to provide a framework capable of explaining our unique prosociality. Under CGS, cultural groups comprised of groups of cultural traits compete with one another; overtime, the cultural traits that benefit group success most are culturally transmitted and sustained (Richerson et al., 2016). In this way, CGS extends the principles of natural selection to cultural groups by suggesting that natural selection does not require genes to operate. Instead, selection only requires 1) variation, 2) transmission and 3) selection: this criterion can be met in systems beyond genes: for example, despite the absence of genes, two grocery companies undergo economic competition. Under free market conditions, the company which offers the products that best meet the demands of the market (e.g., quality, price, convenience) likely establishes greater revenue and associated means by which it can sustain and expand its business. The company's cultural traits that contribute towards the group's success, in turn, persist across time. Alternatively, the company that does not meet the demands of the market is likely unable to sustain nor expand its business. The company's cultural traits, then, do not perpetuate or do so at a lower rate and, or scale. In this way, two companies *vary* in ways that impact their ability to *transmit* their business that are ultimately determined by *selection* exerted by the market. More importantly, this simplified scenario exemplifies CGS: cultural groups compete with one another, and prosocial behaviours have evolved to benefit group success in the context of intergroup competition. These two principles of CGS – intergroup competition and evolved prosocial behaviour within groups that confer group success - underpins this research project.

Cultural Group Selection, Religion and Background Uncertainty

Cultural group selection is intricately associated with social norms and institutions in that CGS gives rise to norms and institutions that confer group-level benefits, including religion. Religion, broadly defined as the general belief in a supernatural god, is a human universal that extends into our anthropological history and permeates across our cultural products, ranging from language to ritual (Richerson et al., 2016). As outlined above, investigations into the evolutionary foundations of religion have demonstrated that religious affiliation positively correlates with prosocial outcomes and has been utilised as an indicative example of CGS - this evidence appears robust cross-culturally (Wilson, 2002). In this way, religion is conceptualised as an evolved cultural institution that facilitates large-scale, anonymous co-operation and in turn, produces greater success in intergroup competition which further perpetuates religion itself. Moreover, like other cultural products, religion is made possible by a repertoire of proximate psychological mechanisms that are consistent with theories of cultural learning. For example, the human tendency for conformist social learning (copying locally common behaviours), punishment of norm violations and cognitive capacities for mentalising (representing others in the mind) all facilitate the transmission and stabilisation of the cultural traits that comprise religious groups (Richardson, 2016). Further, White, Muthukrishna and Norenzayan (2021) have shown that religions do share overlapping cultural traits despite differences in religious denomination – suggesting that intergroup conflict is not necessarily caused by differences in culture but instead other factors such as feeling of group identity. Therefore, CGS underpins this research project by supplying a clear prediction about the degree to which willingness for co-operation enabled by religious affiliation extend to members of religious out-groups. Under CGS, the willingness to co-operate will extend to religious out-group members to the extent that the cultural boundaries between the religious groups overlap. The second research question examines how background uncertainty influences the willingness to co-operate. Specifically, the lack of political stability has been associated with lower growth rates of GDP per capita and decreased trust in government (Aisen & Veiga, 2013, Martin et al., 2022). However, there is limited

research on the effect of political stability on inter-personal willingness to co-operate. Therefore, the project will attempt fill this gap through the second research question.

Research Questions

1. To what extent does religiosity predict willingness to co-operate with members of religious out-groups?
2. To what extent is co-operation towards members of religious out-groups influenced by a country's level of background uncertainty, defined in terms of political stability?

II. Methods and Measures

The study will utilise publicly available and secondary data from five different data sources including the World Bank's Worldwide Governance Indicators, the World Bank's World Development Indicators, the World Values Survey, the European Values Survey and Freedom House. The data sources will be merged at a country-level to create the predictor and outcome measures: Religiosity, willingness to co-operate with members of other religions (Co-operation) and Political Stability. The data sources will also contribute to the necessary control variables, including gender, age, socioeconomic status, educational attainment, GDP and democratic freedom. This section will describe each dataset used for each measure, its availability, the procedures used to collect the data and notable limitations of the data.

1. Political Stability

The political stability measure will utilise data from the World Bank's Worldwide Governance Indicators (WGI) database, specifically its Political Stability and Absence of Violence/Terrorism series (Percentile Rank). This series measures perceptions of the probability of political instability and/or terrorism. The Percentile Rank will be extracted for each country and will be used to indicate the country's political stability relative to all the countries assessed by this series: higher scores present more politically stable countries.

This data is classified as longitudinal data since 1996 that is collected biannually between 1996 and annually after 2002 – the data is available for more than 200 countries and territories and is released at the end of September of each year. The longevity and scope of this data make it a suitable source for this project. The data is extracted directly from the World Bank's Worldwide Governance Indicators open-source database with no restrictions to accessing the dataset, filtered for years 2017-2021. The data is first accessed on 23 November 2022 as a csv file and can be retrieved [here](#).

The data collection procedure is well documented by Kaufmann, Kraay and Mastruzzi (2010): in summary, the data is based on the aggregation of survey responses from households and firms, as well as assessments produced by experts from public, private and NGO sectors, a proportion of which have first-hand knowledge of their country's governance circumstances. Examples of source data include the Afrobarometer surveys, Freedom House and regional development banks. The source data can be retrieved [here](#) and the aggregation method can be viewed in detail in Kaufmann, Kraay and Mastruzzi (2010) under section '4. Constructing the Aggregate WGI Measures'.

However, there are two important limitations to this data. First, the data is perception-based, which may be limited by the biased judgements of individual respondents. Second, the sources comprising

the percentile rank may differ in certain years and between certain countries – this is notable because the analysis relies on cross-country comparisons. However, the authors note that cross-country comparisons within the same time period are still feasible given the sources all utilise similar methodologies.

2. Religiosity and general willingness to co-operate with members of other religions (Co-operation)

Both religiosity and co-operation measures will draw on data from the latest wave of the World Values Survey (WVS) – wave 7 - which collected responses from the middle of 2017 to the 31 December 2021. The WVS is a cross-cultural survey that monitors a range of cultural values, including moral, familial and religious values and is suitable for this project because it provides measures of religiosity and willingness to co-operate with members of other religions. This data is classified as longitudinal data collected between 2017-2021, with a 1-year postponement because of the COVID-19 pandemic. However, most of the data was collected between 2018-2020, with about 10 of the countries collecting data after the pandemic. The data covers 64 countries and includes responses to 14 thematic sub-sections that include societal well-being, economic values and religious values: the English master questionnaire can be viewed in its entirety under the ‘Questionnaire’ section [here](#) and is also included in the Appendices folder, titled ‘WVS Questionnaire’. Only subsets of the data will be used: religiosity will be derived from Q6 and co-operation will be derived from Q62. Control variables of gender (Q260), age (Q262), educational attainment (Q275) and socioeconomic status (Q288) will also be analysed. Religious denomination (Q289) will be obtained as a demography variable for exploratory analysis. Further, because this research project examines religiosity and not specific religious denominations, the inclusion criteria for this dataset includes all responses from countries that are also included in the remaining four datasets. This ensures the maximally representative sample.

The data is obtained from the World Values Survey website in its csv format (non-inverted scales) and is confirmed as open-source with no access restrictions upon completion of the registration form. The data is first accessed on 23 November 2022 and can be downloaded under the ‘Statistical Data Files’ section [here](#). The data collection procedure is well documented by Haerpfer and Colleagues (2022): in summary, the WVS employs a combination of random probability sampling and stratified sampling representative of the respective country’s adult population (aged 18 years and older) and produces survey data primarily through face-to-face interviews with individual respondents at their place of residence. This is occasionally complimented by other methods such as internet panels and telephone interviews. Given its international scope, the survey was translated from the English master questionnaire into Arabic, Spanish and Russian. National survey teams were responsible for translation in instances where another language was required. Some questions were added, modified or removed to the master questionnaire at the discretion of the national survey teams, done for cultural appropriateness. The associated codebook can be found [here](#) under the ‘Documentation’ section and the Appendices, titled ‘WVS Codebook’.

Relevant biases to the data include the data collection method of face-to-face interviews which may incur demand characteristics, particularly around sensitive topics. Further, the multitude of languages used could have introduced the personal biases of translators, influencing the consistency of questions across surveys. Similarly, interpretation of questions is influenced by cultural context.

Additional control measures

3. Individual Freedom

A country's political system expressed in the form of individual freedom is a necessary control variable. This data is attained from Freedom House's Freedom in the World report, specifically, its Global Freedom scores. Global Freedom scores measure a composite of political rights and civil liberties and is scored out of 100, with higher scores indicating greater freedom. The longitudinal dataset is iterated annually with availability since 2013, and its 2022 edition includes 195 countries and 15 territories – the scale of the dataset and its treatment of individual freedom as a unitary continuous variable renders it a suitable source for cross-cultural analysis. The publicly available data is sourced from Freedom House's website and was first accessed on 23 November 2022 in its xlsx format, filtered for 2017-2021 (FIW 2013-2022). Global Freedom scores for each country are sourced from 'Total' (column AR). Procedurally, the scores are reported by a team of external and in-house analysts along with expert advisers who determine scores based on a range of sources such as academic analyses and nongovernmental reports, checked against a list of scoring criteria. The scores are discussed and defended via meetings with an advisory panel and the Freedom of House staff – the subjectivity of this process is a limitation of this data. However, it remains useful in illustrating broad trends in individual freedoms, rather than granular distinctions. The data can be retrieved [here](#) and is included in the Appendices, titled 'Individual Freedom Data'; the full method can be located [here](#).

4. GDP per capita

Lastly, GDP per capita is also used as a control variable. This data is sourced from the World Bank's World Development Indicators, specifically its GDP per capita (current US\$) series. This indicator measures a country's gross domestic product divided by its midyear population and is represented in current U.S. dollars. This longitudinal secondary data is available for years 1960-2021 and is derived from World Bank national accounts data and OECD National Accounts data files. The data, filtered for years 2017-2021, is downloaded from the World Bank's Worldwide Governance Indicators open-source database as a csv file and is publicly available. The data is first accessed on 23 November 2022 and can be retrieved [here](#) as well as in the Appendices.

All available datasets, questionnaires and codebooks are included in the Appendices folder. However, the WVS dataset is not included as the Conditions of Use stipulate that the file is not to be redistributed.

III. Confirmatory Hypotheses & Analysis Plan

The two confirmatory hypotheses are as follows:

1. There will be a statistically significant relationship between religiosity and willingness to co-operate with members of religious out-groups.
2. Co-operation will demonstrate a statistically significant negative relationship with political instability.

Analysis Plan

The two confirmatory hypotheses will be tested using a 2-level multilevel model. This is appropriate because of the presence of nested data: within-person differences in co-operation are nested within between-country differences in background uncertainty via political stability. The presence of nested data suggest that level-1 observations are not independent and thus violates the assumption of independent residuals held by the GLM (Nezlek, 2008). Therefore, a multilevel model will be used. First, the intraclass correlation coefficient (ICC) for co-operation will be calculated based on an

empty model: this will confirm if the Level 1 outcome of cooperation has significant between-country variation in the form of political stability. Next, fixed and random effects of the cooperation intercepts and religiosity slopes on cooperation will be added to construct a 2-level multilevel model. In this way, Level-1 examines the presence of nested data by modelling the effect of political stability on co-operation. Level-2 models the extent to which religiosity predicts co-operation, accounting for political stability. The model will also control for age, gender, socioeconomic status, individual freedom, education and GDP per capita. The model will estimate parameters through maximization of the log-likelihood; statistical significance will be determined by probing the bootstrapped estimate's 95% confidence intervals. The hypotheses will be examined by inspecting the model's fixed and random effects.

The confirmatory analysis code is written in R and appended to the Analysis folder.

IV. Exploratory Analyses

1. Exploratory analysis will examine the distribution of religiosity, co-operation and political stability on a country-level. This will be visualised using descriptive statistics, violin plots and a global choropleth map.
2. Exploratory analysis will also examine the distribution of religious denomination. This will be illustrated using descriptive statistics.

VII. References

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