"Religion in the Context of the Nature-Nurture Debate: Is Individual Level Variation on Religious Outcomes the Result of Biological as Well as Social Forces?"

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Introduction and Background

The longstanding social scientific assumption that religion is a primarily, if not entirely, social phenomenon is being called into question by recent behavioral genetics findings. These studies, which employ data that compare family members (typically twin siblings) to one another, hint at the possibility that individual variation on religious outcomes is the product of biological or genetic influences, as well as social forces. This paper examines a diverse assortment of religion measures that have yet to be analyzed from a behavioral genetics perspective. The relevance of this study for population processes lies in the fact that religion is a powerful and enduring social institution that is linked to numerous outcomes of interest to demographers including: mortality, fertility, health, and migration.

Data and Measures

In order to examine the potential biosocial nature of religion, we analyze the Twins Sample of the National Survey of Midlife Development in the United States (MIDUS), 1995-1996. This data, which was collected on working age adults (ages 25-74) to examine the patterns, predictors, and consequences of midlife development in the areas of

physical health, psychological well-being, and social responsibility, allows us to examine the following three facets of religion: religious or spiritual practices and activities; religious or spiritual beliefs and preferences; and subjective religiosity, spirituality, and salience.

Methods

We utilize the methods of behavioral genetics, a quasi-experimental approach that seeks to explain differences among individuals (individual level variation), to decompose religious outcomes into two main components: genetic and environmental influences (shared and unique). The classical twin design employed here is a widely accepted and methodologically superior way to conduct behavioral genetics research (Plomin 1990). Using this technique, one twin is compared with their cotwin separately for monozygotic and dizygotic twins; then comparisons are made across the two types of twins. Briefly, if monozygotic twins are more similar than dizygotic twins, genetic influences are implied; whereas, if the two types of twins are comparable in their similarity, shared environmental influences are implied.

To formally make these comparisons, we employ structural equations techniques to fit covariance matrices to models containing the three components of a behavioral genetics analysis: genetic influences (symbolized by "A" for additive genetic proportion); shared environmental influences (symbolized by "C" for common or shared environmental proportion); and nonshared environmental influences (symbolized by "E" for error and unique or nonshared environmental proportion). In total, we fit three different models to the data for each of our twelve religion outcomes: the ACE model described above which

decomposes observed religion outcomes into latent genetic, shared environmental, and nonshared environmental components; an AE model that drops the shared environmental component; and a CE model that drops the genetic component. Estimating an E-only model would assume that there is no family resemblance on religious outcomes at all, and that twins would not be correlated. This is obviously not the case for religion. Additionally, we do not fit any models that do not contain E because they would assume that that no differences exist between monozygotic twins. Our data, as well as every other study done to date, shows that this assumption is clearly false, so we do not estimate A-only or C-only models. Using three different fit statistics (chi-square with significance level; Aikake's Information Criterion or AIC; and root mean square error approximation or RMSEA), we retain the best-fitting of the three models and then use it to calculate proportional estimates of A, C, and E on religious outcomes. This is done by: (1) squaring each of the three path estimates (A, C, and E); (2) adding them together; and then (3) dividing each one by the sum total to obtain a proportional estimate.

Results

For each of our twelve religion outcomes, models containing a genetic component (ACE and AE) fit better than models that do not take this influence into account (CE). In none of our analyses was the CE model (shared and nonshared environmental influences only) the best-fit model, although for some outcomes the CE model does fit well: religious or spiritual service attendance, the preference for others of the same religion, marrying within religion, religious identification, religion influences daily decisions, and a couple of others that are borderline. However, these models do not fit as well as models

containing a genetic component. What is also clear from these analyses is that shared environmental influences are: obviously important for several outcomes (religious or spiritual service attendance, the belief that marrying within ones religion is important, salience of religion when growing up, subjective religiousness, and religious identification); not important for one (being born-again or making a religious commitment); and borderline important for several religious outcomes (Biblical literalism, preferring people of the same religion, religious exclusivism, subjective spirituality, and seeking comfort in religion or spirituality).

Discussion

Briefly, our discussion deals with four important issues. First, we discuss the manner in which these findings can be interpreted from, as well as inform, the perspectives of social science that are commonly employed to study religious phenomena: social learning theory, cultural theory, and rational choice theory. In essence, the genetic component is viewed as an indicator of individual autonomy, while the environmental components are constraints on this autonomy. Second, we discuss the potential implications of this type of research for the social scientific study of religion (insufficient explanatory power, uninterpretable results, confounding effects or spurious relationships, etc.). Third, we discuss the relevance of these findings for population processes (religion is important because it is associated with many population processes: mortality, fertility, health, and migration). And fourth, we briefly outline how social scientists can and should address the role of biological or genetic factors in religious and population outcomes.