WHO VALUES CHILDREN’S IMAGINATION? THE EFFECT OF RELIGIOUS ORTHODOXY ON HUMAN VALUES IN 16 WESTERN COUNTRIES

A Thesis
submitted to the Faculty of the
Graduate School of Arts and Sciences
of Georgetown University
in partial fulfillment of the requirements for the
degree of
Master of Public Policy
in Public Policy

By
Zachary J. Warren, M.Div.

Thesis Advisor:
Christopher M. Toppe, Ph.D.

Washington, DC
April 15, 2011
WHO VALUES CHILDREN’S IMAGINATION? THE EFFECT OF RELIGIOUS ORTHODOXY ON HUMAN VALUES IN 16 WESTERN COUNTRIES

Zachary J. Warren, M.Div.

Thesis Advisor:
Christopher M. Toppe, Ph.D.

ABSTRACT

Developmental research suggests that imagination is an important attribute for children's development, but some individuals value children's imagination more, and some less. What factors drive the difference? A theory is presented that religious orthodoxy, defined as belief in absolute rules, decreases the likelihood that individuals value imagination. Using the World Values Survey, a probit regression analysis is conducted on responses from 12,911 participants in 16 countries to assess the impact of religious orthodoxy on the perceived importance of children’s imagination. Results support the hypothesis that religious orthodoxy carries a robust negative influence, above and beyond individual differences in religiosity, education, age, and gender. Implications for parenting style and educational intervention are discussed.
This thesis is the product of many minds. I am grateful to Dr. Chris Toppe, my thesis adviser, for honest feedback, and to Prof. Donna Morrison, Carolyn Trager, Kate Drew, Aaron Berman, Jennifer Poos, and Lance Lohman for additional support. I owe a special debt to the researchers of the World Values Survey. Their combined work makes research questions about human values around the globe empirically possible - and a whole lot of fun.

Gratefully,
ZACH WARREN
TABLE OF CONTENTS

Introduction..............................................................................................................1

Terms.......................................................................................................................2

Table 1: Meaning of “imagination” across diverse languages...............................3

A Model for Value Drivers.....................................................................................4

Religious Orthodoxy .............................................................................................6

An Important Distinction: Religiosity vs. Religious Orthodoxy..........................7

Research Question and Hypotheses......................................................................8

Data Set & Variables..............................................................................................8

Table 2: Descriptive Statistics for Dependent Variable, by Country & Survey Language.................................9

Table 3: Variables for Orthodoxy and Religiosity ...............................................12

Table 4: Descriptive Statistics for Independent Variables....................................14

Methodology .........................................................................................................14

Results....................................................................................................................15

Table 5: Results from probit OLS regressions [negative coefficients shaded gray]........17

Discussion..............................................................................................................18

Bibliography..........................................................................................................21
1. Introduction

*The Imagination is one of the highest perogatives of man. By this faculty he unites, independently of the will, former images and ideas, and thus creates brilliant and novel results.*

- Charles Darwin (1872: 44)

*There are no seven wonders of the world in the eyes of the child. There are seven million.*

- Walt Streightliff

Imagination is an important component of children’s social, emotional, and cognitive development. An infant demonstrates sensorimotor play in the first six months (Piaget, 1962), and demonstrates capacity for pretend play and imaginary mental representation around age two (Lillard, 1993). During middle childhood, imaginary play focuses on games with rules, where imagination engages with logical rules and socialized ways of thinking. Research suggests that children use imagination for problem-solving (Cole, 1993), empirical reasoning (Dias & Harris, 1990; Byrne, 2005), learning (Bergen, 1988; Sternberg, 1999), emotional self-regulation (Singer, 1973), and cultivation of empathy (Iacoboni & Dapretto, 2006). Imagination may be particularly important during the childhood years, since childhood contains “sensitive” or “critical periods” for the acquisition and developmental trajectory of various cognitive abilities, including mental modeling (Montessori, 1963; Gardener, 1982; Pinker, 1994; McKenzie, 1995). In fact, the goal of many schools (e.g. Greenfield and Montessori schools) is to produce students who are imaginative problem solvers (Montessori, 1963; Hess, 2010).

Nations are also understood to benefit: imaginative scientists, engineers, economists, and entrepreneurs help maintain economic standing in competitive global markets (Soriano de Alencar, 2003). “Imagination,” Albert Einstein quipped while reflecting on the process of his own discoveries, “is more important than knowledge” (Viereck, 1929). Imaginative thinking helps drive innovation in technology at organizations such as Apple, Google, and NASA. Creative industries such as Hollywood are, in large part, based on pretend play. Imagination also plays a role in social identity and meaning making, as a cognitive faculty by which individuals and groups make sense of the world (e.g. Egan, 1992; Sutton-Smith, 1988; Norman, 2000).
However, some individuals and groups value children’s imagination explicitly more than others. For example, when asked to list the five most important child attributes in the World Values Survey, more than 20% of respondents in Western countries of Germany, Spain, Britain, Australia, and the United States included “imagination,” compared to less than 15% in Eastern European countries of Belarus, Estonia, and Hungary, and less than 10% in Middle Eastern countries such as Jordan, Morocco, and Pakistan.¹

What drives this value difference? Education policy-makers and developmental researchers interested in children’s imagination would benefit from an analysis of key demographic and social factors. One driver may be education: some individuals are less educated about the developmental importance of imagination than others. Other influences may come from cultural context, family context, and individual level factors.

This paper argues that religious belief, specifically orthodox religious belief, is a key driver. Orthodox religious belief is thought to decrease the extent to which individuals value imagination as important for children’s development because these beliefs emphasize absolute rules, such as the Ten Commandments in Christianity, or to rules around fasting, prayer, and the avoidance of certain food products in Judaism and Islam. By nature, a child’s imagination does not follow absolute rules. Rules in pretend play are flexible, open to revision and reinvention. This paper uses cross-national data from the World Values Survey (WVS) to test this argument.

**TERMS**

Key theoretical terms in this analysis are “values,” “orthodoxy,” and “imagination.” Values are defined as “desirable, transsituational goals, varying in importance, that serve as guiding principles in people’s lives” (Schwartz, 1994: 21). Orthodoxy (from Greek, *orthodoxía*) is defined as “conforming to the approved form of any doctrine, philosophy, [or] ideology,” including conventional or generally accepted beliefs (Random House, 2010). Imagination is defined as “the ability of the mind to be creative or resourceful,” which includes the capacity for fantasy (Soanes & Stevenson, 2008).

¹ Based on data from 83 countries World Values Survey waves I-IV aggregate data from 83 countries (n=262,209). Data publicly available at: [www.wvsevsdb.com](http://www.wvsevsdb.com). Countries cited above were selected based a minimum sample size of n=2500. A total of 18.5% (48,508) participants listed imagination, across all 83 samples.
As a study on values, this analysis is only interested in the concept, rather than practical tasks, that individuals associate with imagination. Concrete tasks associated with imagination vary across culture and time (see Niu & Sternberg, 2002; Child, 1972; Runco, 1993). The concept of imagination, however, appears stable across languages used in European, Scandinavian, and Middle Eastern and Asian countries [Table 1].

Table 1: Meaning of “imagination” across diverse languages

<table>
<thead>
<tr>
<th>Language</th>
<th>Direct Translation</th>
<th>Backtranslated Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spanish</td>
<td>imaginación</td>
<td>Imagination, the power to form images, ideas in the mind (Jarman, et al., 2003)</td>
</tr>
<tr>
<td>French</td>
<td>imagination</td>
<td>Imagination, fantasy, mental ability to imagine (Corrèard et al., 2001)</td>
</tr>
<tr>
<td>German</td>
<td>vorstellung</td>
<td>Imagination, conception of an idea or vision (Clark &amp; Thyen, 2000)</td>
</tr>
<tr>
<td>Swedish</td>
<td>fantasi, inbillningsförmåga</td>
<td>Imagination, inventiveness, fantasy, formation of mental images (Hansen &amp; Nilsson, 2002)</td>
</tr>
<tr>
<td>Icelandic</td>
<td>ímyndunarafl</td>
<td>Imagination, fantasy (Hólmarsson et al., 1989)</td>
</tr>
<tr>
<td>Modern Arabic</td>
<td>تخيل</td>
<td>Imagination, fantasy, ability to project mental images that do not exist. Synonymous with ingenuity and insight (تbüصر، بصيرة، and تخيل، تصور، تصور، تخيل) (Wehr, 1980)</td>
</tr>
<tr>
<td>Urdu</td>
<td>تصور</td>
<td>Imagination, fancy, the formation of ideas, fanciful thinking (Haqqee, 2003)</td>
</tr>
<tr>
<td>Russian</td>
<td>ВООБРАЖЕНИЕ</td>
<td>Imagination, associated with fantasy (ФАНТАЗИЯ) (Wheeler et al., 2000)</td>
</tr>
<tr>
<td>Chinese</td>
<td>想像力</td>
<td>Imagination, mental conception of ideas not available to the senses. Associates with children and artists who operate without limitation of rules (OCD, 2010)</td>
</tr>
</tbody>
</table>

Likewise, classical Persian, Hindi, and Hebrew feature terms for imagination defined by the formation of mental images that may or may not exist in reality. These definitions point to a strong association between imagination and fantasy.
This association may also explain why so many educators and political activists value imagination as a practical tool for learning or social change. For example, Martin Luther King, Jr., chose the title “I Have a Dream” for his landmark Civil Rights Speech in 1963, rather than “I Have a Fact” or “I Have Proof.” He addressed the faculty of imagination rather than deduction and empiricism, since he was proposing a departure from historical reality. As Latino poet Martín Espada writes, “Any progressive social change must be imagined first” (1998: 100). The Great Soviet Encyclopedia (1979) further defines imagination as the mental capacity concerned with “practical transformation of reality.” As such, imagination connotes a power to change or transform rules.

Consistent with these definitions is the hypothesis that individuals and groups with rigid religious beliefs are less likely to see the importance of imagination compared to individuals with flexible religious beliefs. Regarding the socialization of children, individuals whose belief structures are concerned with the preservation of absolute rules are predicted to value imagination less than those who see rules as relative or flexible. Before making this argument, however, it is important to present a model that represents other variables that drive value differences.

**A Model for Value Drivers**

No known research has analyzed influences on the value of imagination. However, previous studies using World Values Survey data have developed measures for macro-level drivers of human values, such as sociopolitical freedom and insecurity (e.g. Inglehart & Welzel, 2005; Inglehart & Moaddel, 2006; Inglehart, 2008). Values toward the socialization of children are likely shaped by individual and family factors such as parenting style in the home, as well. Therefore a nested circles model for understanding value drivers is presented [Figure 1]. This model is an adaptation of Bronfenbrenner’s (1979) nested circles model for human development. However, it is used here to explain a model of human value development, rather than human development broadly. It squares with the assumptions of symbolic interactionism, a major sociological perspective which examines how micro-level factors of human behavior and beliefs interact with social context to form social reality (O’Brien & Kollock, 2001). The term “symbolic interactionism” was coined by sociologist Herbert Blumer (1969).
with three assumptions: (1) Humans act toward things and persons on the basis of the meanings they ascribe to those things, (2) Meaning is socially defined through interaction with others in society, and (3) These meanings are interpreted and modified through interactive processes. Influence is bidirectional: macro-level, sociopolitical and cultural contexts drive differences in individual values, and individual values, in turn, influence community values, social movements, and broad sociopolitical change.

*Figure 1: A model for understanding value drivers*

![Diagram showing layers of influence with labels for sociopolitical freedom, cultural context, family life, school, and peer context, and individual-level characteristics.]

At the macro-level, outer circles represent sociopolitical freedom and cultural context. Sociopolitical freedom refers to factors such as freedom of speech, freedom of expression, and protections that determine the extent to which it is safe to be imaginative. Cultural context includes beliefs about the perceived value of imaginative products and flexible thinking in society, the roles and responsibilities of the parent, and social ideas about the roles and responsibilities of parents and children. More immediate influences are family life, school, and peer contexts. These include socialization processes such as family traditions, school curriculum, attitudes of teachers, and peer-peer interactions. The innermost circle represents individual-level characteristics, such as gender, age, occupation, and individual beliefs. Religious beliefs play a role at all levels, from individual beliefs about right conduct, to community beliefs about appropriate school curriculum, to black-letter laws and national identity (e.g. “In God we trust”). It appears reasonable, then, to suspect that the nature of individual religious beliefs -- i.e. the degree to which these are flexible and relativistic, vs. rigid and rule-oriented -- would
influence values toward children’s socialization as well.

**RELIGIOUS ORTHODOXY**

Religious orthodoxy is predicted to decrease the value placed on imagination in children’s socialization. “Orthodoxy” in this analysis is not used to refer to religious groups that self-identify as such (e.g. Jewish Orthodox, Greek Orthodox); rather, the term is used more broadly for rigidity of thought around religious laws. Religious orthodoxy is a group-level trait that tends to be associated with authoritarian approaches to social rules and right conduct. An authoritarian parent may justify a social rule for a child by saying, “Because I said so” (Baumrind, 1966). In the context of religious orthodoxy, this becomes, in essence, “because God said so.”

Imagination and orthodox thinking appear to be inversely related in important ways. First, expressions of orthodoxy require convergence upon a single right, correct, or conventional solution, whereas imagination is associated with divergent thinking (Sternberg, 1999). Second, the spectrum of products differ: imaginative products may include a broad range, whereas orthodoxy connotes a limited set of products. Third, in personality research, orthodoxy is associated with conscientiousness, whereas imagination is correlated with plasticity in thinking, openness to experience, and low levels of conformity (Silvia et al., 2009; DeYoung, Peterson, & Higgins, 2002). “Orthodoxy,” in the words of British biologist Thomas Huxley (1860), “is the Bourbon of the world of thought. It learns not, neither can it forget.”

One Christian example of how orthodoxy restricts the value placed on imagination is the Roman Catholic concept of *curiositas*, or curiosity about new ideas and earthly knowledge. Originating in Thomas Aquinas’ writings, *curiositas* is considered immoral and forbidden. By contrast, *studiositas*, the acquisition of correct knowledge in conventional ways, is a virtue. The authoritarian implication is, do not be too curious, or unconventionally curious, “Because God said so.” The theological justification uses different words but is grounded in the same assumption, evident in the Hebrew terms for imagination, that humans are wicked. In Genesis, the Hebrew word *yêtser* (יֵטֶר) is used for imagination, a term which in context refers to the human capacity for freedom to imagine things both good and evil (Gesenius, 1952). Genesis 6:5 (King James Version) reads, “And God saw that the wickedness of man
[was] great in the earth, and [that] every imagination (yêtser) of the thoughts of his heart [was] only evil continually.” Other terms used for imagination in the ancient Hebrew lexicon (specifically, maskiyth, yitsriy) associate imagination with the creation of idols and false gods, conceit, and the independent formation of purpose.

**AN IMPORTANT DISTINCTION: RELIGIOSITY VS. RELIGIOUS ORTHODOXY**

Religious orthodoxy is not, however, contiguous with religiosity. Religiosity has often been defined by measures of regularity in ritual religious practice (e.g. church attendance rates), membership in a religious denomination, and religious self-identification (e.g. Miller, 2000; Miller et al., 1995, 2002; Freese, 2004; Okulicz-Kozaryn, 2010). These are not tantamount to orthodoxy: being religious does not require authoritarian or rigid religious beliefs. It is true that members of a religious denomination are often referred to as “adherents” of that tradition, connoting conformity to a set of guidelines, but these guidelines may be liberally defined, and liberally followed. Indeed, some religious communities emphasize imagination and flexibility in thought more than others. This diversity is evident when comparing, for example, Mormon vs. Unitarian Universalist communities in America, or Sufi vs. Wahhabi Islamic communities in various countries. Religious rules around day-to-day dress, consumption of food, prayer, speech, work, and charitable giving are defined more and less extensively, and enforced more and less stringently, across different religious communities. This also includes individual-level variation: individuals within religious communities may interpret and follow doctrinal rules with more or less flexibility in their personal life.

In some cases, orthodox beliefs may even promote the use of imagination, such as when dogma dictates an (imagined) alternative to a dominant social or political reality. For example, Ayatollah Khomeini’s early speeches conjured images of an Islamic state without the Shah, a vision of an alternative reality that led to the 1979 Islamic Revolution in Iran. Eisenstadt (1968) argues that religion carries a “transformative potential,” expressed by a “capacity to legitimize, in religious or ideological terms, the development of new motivations, activities, and institutions which were not encompassed by [that religion’s] original impulses and views.” A logical extension of Eisenstadt’s argument, of course, is that
once religious rules have been legitimized as the status quo, imagination is no longer important. Instead, obedience and discipline to the established order become important. Given this possibility, the present study focuses on Christian respondents in countries where the status quo is Judeo-Christian.

2. Research Question and Hypotheses

Does an increase in orthodox beliefs predict a decrease in the value placed on children’s imagination? For findings to be robust, this effect should be seen over and above other possible drivers, including: sociopolitical variation, individual and group differences (age, education, socioeconomic status, gender), and measures for religiosity that may or may not correspond with orthodox beliefs.

The null hypothesis is that level of religious orthodoxy has no effect on whether individuals consider imagination important for children, ceterus paribus. The alternative hypothesis is that an increase in religious orthodoxy predicts a decrease in imagination, ceterus paribus. In other words, religious orthodoxy is a group-level trait that explains why some individuals value children’s imagination more than others, after controlling for other influences.

3. Data Set & Variables

The World Values Survey (WVS) was designed to enable a cross-national, cross-cultural comparison of values and norms on a variety of topics, including religious values and participation.2 It consists of face-to-face interviews with adults 18 years and older in nationally representative samples around the world about their views about a variety of social topics, including important child attributes and religious beliefs. Surveys were carried out in five waves over 30 years.

Only Wave I (1981-1984) includes variables for orthodoxy as defined in terms of attitudes toward doctrinal religious rules: for each of the Ten Commandments, participants were asked whether it applies across time to most people always, sometimes, or never. To control for variation in sociopolitical context, 16 countries are included in this analysis. Conditions for country selection were two criteria: (1) having all key variables in question, and (2) having a majority Judeo-Christian population at the time of

2 The full dataset is available online at www.wvs.org

Of 16 country surveys, 6 were conducted in English. All others were translated from the original English version into the language of the country surveyed, then backtranslated to English to check for accuracy, consistent with WVS protocol. Table 2 lists languages used and country sample sizes.

The dependent variable is whether or not the participant values imagination as an important child attribute. This is measured by WVS1981 question V18 (EVS1981 question V437): “Here is a list of qualities that children can be encouraged to learn at home. Which, if any, do you consider to be especially important?” Participants were asked to choose up to five qualities from a list that includes Obedience, Politeness and Good Manners, Hard Work, Independence, Responsibility, Resourcefulness/Thriftiness, Determination/Perseverence, Religious Faith, Unselfishness, and Imagination. Imagination is coded as a binary (selected/not selected).

Of 25,252 respondents in 16 countries, 2,958 (11.7%) cited imagination as an important child attribute. This ranged from a low of 2.1% of all responses in Malta to a high of 24.5% in Spain.

### Table 2: Descriptive Statistics for Dependent Variable, by Country & Survey Language

<table>
<thead>
<tr>
<th>#</th>
<th>Country</th>
<th>Language of Survey</th>
<th>Total Respondents</th>
<th>Imagination Important % (N)*</th>
<th>Missing/Unknown/No Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Belgium</td>
<td>Belgian</td>
<td>1145</td>
<td>8.1% (93)</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>Canada</td>
<td>English</td>
<td>1257</td>
<td>10.2% (128)</td>
<td>0</td>
</tr>
<tr>
<td>3</td>
<td>Denmark</td>
<td>Danish</td>
<td>1182</td>
<td>10.2% (121)</td>
<td>0</td>
</tr>
<tr>
<td>4</td>
<td>France</td>
<td>French</td>
<td>1200</td>
<td>12.3% (148)</td>
<td>0</td>
</tr>
<tr>
<td>5</td>
<td>Germany (West)</td>
<td>German</td>
<td>1305</td>
<td>13.8% (181)</td>
<td>0</td>
</tr>
<tr>
<td>#</td>
<td>Country</td>
<td>Language of Survey</td>
<td>Total Respondents</td>
<td>Imagination Important % (N)*</td>
<td>Missing/Unknown/No Answer</td>
</tr>
<tr>
<td>----</td>
<td>-----------------</td>
<td>--------------------</td>
<td>-------------------</td>
<td>------------------------------</td>
<td>----------------------------</td>
</tr>
<tr>
<td>6</td>
<td>Britain</td>
<td>English</td>
<td>1167</td>
<td>11.4% (133)</td>
<td>0</td>
</tr>
<tr>
<td>7</td>
<td>Iceland</td>
<td>Icelandic</td>
<td>927</td>
<td>5.9% (55)</td>
<td>14</td>
</tr>
<tr>
<td>8</td>
<td>Ireland (Republic)</td>
<td>English</td>
<td>1217</td>
<td>7.5% (91)</td>
<td>0</td>
</tr>
<tr>
<td>9</td>
<td>Northern Ireland</td>
<td>English</td>
<td>312</td>
<td>8.7% (27)</td>
<td>0</td>
</tr>
<tr>
<td>10</td>
<td>Italy</td>
<td>Italian</td>
<td>1348</td>
<td>7.8% (105)</td>
<td>0</td>
</tr>
<tr>
<td>11</td>
<td>Malta</td>
<td>English</td>
<td>467</td>
<td>2.1% (10)</td>
<td>0</td>
</tr>
<tr>
<td>12</td>
<td>Netherlands</td>
<td>Dutch</td>
<td>1221</td>
<td>10.8% (132)</td>
<td>0</td>
</tr>
<tr>
<td>13</td>
<td>Norway</td>
<td>Norwegian</td>
<td>1051</td>
<td>11.6% (122)</td>
<td>23</td>
</tr>
<tr>
<td>14</td>
<td>Spain</td>
<td>Spanish</td>
<td>2303</td>
<td>24.5% (564)</td>
<td>0</td>
</tr>
<tr>
<td>15</td>
<td>Sweden</td>
<td>Swedish</td>
<td>954</td>
<td>16% (153)</td>
<td>0</td>
</tr>
<tr>
<td>16</td>
<td>United States</td>
<td>English</td>
<td>2325</td>
<td>9.1% (211)</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td></td>
<td><strong>25,252</strong></td>
<td><strong>11.7% (2,958)</strong></td>
<td><strong>37</strong></td>
</tr>
</tbody>
</table>

*Excludes "don’t know" and unanswered responses

**Demographic control variables** include participant’s age, sex, education, socioeconomic status, and country. Age (WVS var x003r) was pre-coded into six age categories: 1= 15-24 years; 2= 25-34 years; 3= 35-44 years; 4= 45-54 years; 5= 55-64 years; and 6= 65+ years. Sex (WVS var x001) was coded as an indicator variable, where 1=male, 0=female. Education (WVS var x023r) was measured by age of completion of schooling and coded on a 1-10 scale, where 1= less than 12 years of age, 2= 12 years, 3-9 represents each additional year beyond 12 years, and 10 = 21+ years of age. Highest education level attained was not assessed in Wave I.

Socioeconomic status (WVS var x046) consisted of four categories coded as: 1= Manual work/Unemployed; 2= Middle class with manual work; 3= Middle class without manual work; and 4= Upper/Upper middle class. This variable was only available in Wave I for 10 of 16 countries in the analysis:
Belgium, Denmark, France, Ireland, Italy, Netherlands, Spain, Great Britain, Germany, and Northern Ireland.

An additional control variable was added for whether or not the participant self-identified as Christian, since the Ten Commandments are part of Christian doctrine in particular. Those who listed a Christian religious denomination, or who reported themselves as “Christian” on WVS var f025) were coded as 1; all others were coded 0.

**Independent variables** consist of two variables for religious orthodoxy, and four proxy variables for religiosity [Table 3 on following page].
<table>
<thead>
<tr>
<th>Independent Variables: Orthodoxy &amp; Religiosity</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ORTHO DOXY</strong></td>
</tr>
</tbody>
</table>
| *One Truth*  
(WVS F023) | “These are statements one sometimes hears. With which would you tend to agree?” Coded:  
1 = Only one true religion  
0 = Truths and meanings in all religions  
Excluded: ‘None has any truths’ |
| *Ten Commandments*  
(WVS F078 to F087) | [Asked for each commandment]  
“And what about for most people, tell me whether it still applies fully today, whether it applies today to a limited extent or no longer applies today?”  
Coded:  
2 = Applies fully  
1 = To limited extent  
0 = Does not apply  
Responses summed over ten responses to composite score (0 to 20)  
(1) I am the Lord thy God, thou shalt have no other gods before me  
(2) Thou shalt not take the name of the Lord thy-God in vain  
(3) Thou shalt keep the Sabbath holy  
(4) Thou shalt honor thy mother and thy father  
(5) Thou shalt not kill  
(6) Thou shalt not commit adultery  
(7) Thou shalt not steal  
(8) Thou shalt not bear false witness against thy neighbor  
(9) Thou shalt not covet thy neighbor’s wife  
(10) Thou shalt not covet thy neighbor's goods |
| **RELIGIOSITY**                                   |
| *Religious membership*  
(WVS f024) | “Do you belong to a religious denomination?”  
0 = No  
1= Yes |
| *Religious attendance*  
(WVS f028) | “Apart from weddings, funerals, and major events, about how often do you attend religious services these days?”  
Recoded:  
0 'Never practically never'  
1 'Less often'  
2 'Once a year'  
3 'Other specific holy days'  
4 'Only on special holy days/Christmas/Easter days'  
5 'Once a month'  
6 'Once a week'  
7 'More than once a week' |
| *Strength and comfort in religion*  
(WVS f064) | “Do you find that you get comfort and strength from religion?”  
0= No  
1= Yes |
| *Self-identifies as ‘religious’*  
(WVS f034) | “Independently of whether you go to religious services or not, would you say you are a religious person?”  
0= No  
1= Yes |
An individual with orthodox religious beliefs is expected to report that (1) there is only one true
religion (WVS var f023), and (2) the Ten Commandments are laws that apply to people across all time
(WVS vars #f078-f087). The Ten Commandments refer to a contract between God and the ancient
Israelites recorded in the Bible (Exodus 20:2-17; Deuteronomy 5:6-21) and considered binding by
mainstream Jewish and Christian traditions. The first variable (labeled One Truth in the full model) is
coded as binary (yes/no), and the second variable (labeled Ten Commandments in the full model) is a
summed composite of each participant’s responses to the Ten Commandments questions. These variables
are not combined because they provide different information: One Truth implies a broad distinction
(orthodox/not orthodox), whereas Ten Commandments provides a sliding scale, where orthodoxy is
measured by degree of fixity in belief. An orthodox person is expected to answer these questions with less
flexibility (One Truth = 1, and higher on the Ten Commandments sliding scale), while a non-orthodox
person is expected to answer with more flexibility (One Truth = 0, and lower on the TenComm sliding
scale).

Religiosity is measured by four internally consistent variables used in previous literature (Miller,
2000; Miller et al., 1995, 2002; Freese, 2004; Okulicz-Kozaryn, 2010): (1) Participant affiliates with a
religious denomination (WVS f024), (2) Reported attendance at religious services (WVS f028), (3)
Participant finds comfort and strength in religion (WVS f064), and (4) Participant self-identifies as “a
religious person.” While these were significantly intercorrelated (r = .45 for each pair, p<.001), this
correlation was not strong enough to justify aggregating the data into a scale.

Two additional variables for religiosity used in previous literature were absent in Wave I and
could not be included. These are: Importance of religion in one’s life (WVS a006) and active membership
in a religious organization (WVS a098). Additionally, variables associated with spirituality but not
explicitly associated with religion, such as “How important is God in your life?” (WVS f063, Likert-type
scale: 1= ‘not at all important’; 10= ‘very important’), were excluded from this analysis. For religiosity,
Okulicz-Kozaryn (2010) used the question “Would you say you are a religious person?” (WVS f034),
while others did not (e.g. Freese, 2004). The question was included in this analysis given that
assumption that religiosity is a function of subjective self-identification beyond objective measures of
attendance and denominational membership. Self-identification is consistent with a vernacular approach to the study of religion (Primiano, 1995).

Two additional variables have high intercorrelations but were nonetheless included separately. These were religious membership (f024) and Christian self-identification (WVS f034) ($r=.88$, $p<.001$). This correlation is expected, given that the countries are majority Judeo-Christian. Nonetheless, both variables were included in the analysis since a significant number of self-identified Christians do not belong to a particular Christian denomination.

The full list of independent variables and descriptive statistics is listed in Table 4.

**Table 4: Descriptive Statistics for Independent Variables**

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>Min</th>
<th>Max</th>
<th>Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Variable</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>264,839</td>
<td>3.14</td>
<td>1.59</td>
<td>1</td>
<td>6</td>
<td>Scale</td>
</tr>
<tr>
<td>Sex</td>
<td>267,660</td>
<td>0.48</td>
<td>0.50</td>
<td>0</td>
<td>1</td>
<td>Indicator</td>
</tr>
<tr>
<td>Education</td>
<td>196,380</td>
<td>6.41</td>
<td>3.03</td>
<td>1</td>
<td>10</td>
<td>Ordinal</td>
</tr>
<tr>
<td>SES</td>
<td>78,207</td>
<td>2.39</td>
<td>0.95</td>
<td>1</td>
<td>4</td>
<td>Ordinal</td>
</tr>
<tr>
<td>Christian, Christianity</td>
<td>267,870</td>
<td>0.57</td>
<td>0.49</td>
<td>0</td>
<td>1</td>
<td>Indicator</td>
</tr>
<tr>
<td>Country</td>
<td>16</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>16</td>
<td>Nominal</td>
</tr>
<tr>
<td>Ten Commandments</td>
<td>18,147</td>
<td>10.92</td>
<td>5.09</td>
<td>0</td>
<td>20</td>
<td>Continuous</td>
</tr>
<tr>
<td>One Truth</td>
<td>17,831</td>
<td>0.30</td>
<td>0.46</td>
<td>0</td>
<td>1</td>
<td>Interval</td>
</tr>
<tr>
<td>Belongs to Religious Denomination</td>
<td>256,487</td>
<td>0.80</td>
<td>0.40</td>
<td>0</td>
<td>1</td>
<td>Indicator</td>
</tr>
<tr>
<td>Comfort/strength from Religion</td>
<td>221,869</td>
<td>0.69</td>
<td>0.46</td>
<td>0</td>
<td>1</td>
<td>Indicator</td>
</tr>
<tr>
<td>Religious Attendance</td>
<td>252,535</td>
<td>4.65</td>
<td>2.56</td>
<td>1</td>
<td>8</td>
<td>Ordinal</td>
</tr>
<tr>
<td>Religious Person</td>
<td>267,870</td>
<td>0.62</td>
<td>0.48</td>
<td>0</td>
<td>1</td>
<td>Indicator</td>
</tr>
</tbody>
</table>

4. **Methodology**

A probit function for Ordinary Least Squares multivariate regression analysis was used because the dependent variable (imagination) is binary. Probit is a statistical procedure used to estimate the impact of changes in independent variables on a binary (0/1) dependent variable in terms of proportional
rather than linear effects (Finney, 1952).

Four separate models were analyzed using Stata v10.1 software (StataCorp LP, 2008). The first model consists only of demographic controls. The second adds variables for orthodoxy. The third, and full model, adds variables for religiosity. A fourth model excluded socioeconomic status (SES) in order to add data from six countries: Canada [1982], Iceland [1984], Malta [1983], Norway [1982], Sweden [1982], and the United States [1982]. Surveys from these countries were missing SES variable WVS x046. However, some of the effect of SES is expected to be represented by years of education, since the two are significantly correlated \( r = .43, p < .001 \). The fourth model is included primarily to check the results on the third model. Assuming a real, enduring effect from orthodoxy and religiosity, increasing the sample size by six countries is expected to have little impact on the direction or magnitude of the results.

The full (third) model, is expressed as:

\[
\text{Probability of valuing children's imagination} = \beta_0 + \beta_1 \text{(age)} + \beta_2 \text{(sex)} + \beta_3 \text{(education)} + \beta_4 \text{(SES)} + \beta_5 \text{(country)} + \beta_6 \text{(OneTruth)} + \beta_7 \text{(TenComm)} + \beta_8 \text{(Religiosity1)} + \beta_9 \text{(Religiosity2)}
\]
\[
+ \beta_{10} \text{(Religiosity3)} + \beta_{11} \text{(Religiosity4)} + \beta_{12} \text{(Christian self-identification)} + \epsilon
\]

5. Results

Results confirm the hypothesis that religious orthodoxy significantly decreased the amount that children’s imagination was valued. This result was significant over and above the effect of all variables for religiosity, controlled for separately. Demographic controls explain 7.3% of the variance in model 1, while adding orthodoxy and religiosity variables explains 10.6% of the variance in model 3.

In the full model, a ten point increase in the Ten Commandments value (range: 0-20) predicts a 24% decrease in the probability that the survey respondent included imagination as an important child attribute. In other words, the difference between responses of “Does not apply” vs. “To a limited extent” vs. “Applies fully” for each of the Ten Commandments corresponds with a significant decrease in how
likely children’s imagination is valued, holding all other variables constant, within the variance explained by the model.

While this effect was significant for *Ten Commandments*, it was not statistically significant for *One Truth* when variables for religiosity were added (models 3 and 4). Notably, *One Truth* was significantly correlated with each of the four variables for religiosity: Religious Attendance ($r=.41$, $p<.001$); Comfort/Strength in Religion ($r=.36$, $p<.001$); Self-identifies as Religious Person ($r=.30$, $p<.001$); and Belongs to Religious Denomination ($r=.20$, $p<.001$).

The fourth model reflects sustained, robust negative bias on coefficients for orthodoxy and religiosity variables after adding data from 5,183 participants in six additional countries. The negative bias is significant at the 95% and 99% confidence levels for coefficients on all variables for religiosity and orthodoxy except *One Truth*.

Results for all models are listed in Table 5 [see following page].
Table 5: Results from probit OLS regressions [negative coefficients shaded gray]

<table>
<thead>
<tr>
<th>Category</th>
<th>Independent Vars</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Coefficient</td>
<td>Coefficient</td>
<td>Coefficient</td>
<td>Coefficient</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Standard Error)</td>
<td>(Standard Error)</td>
<td>(Standard Error)</td>
<td>(Standard Error)</td>
</tr>
<tr>
<td>Demographic Controls</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>1=15-24; 2=25-34; 3=35-44; 4=45-54; 5=55-64; 6=65+</td>
<td>-.110*** (.010)</td>
<td>-.96*** (.012)</td>
<td>-.073*** (.013)</td>
<td>-.074*** (.010)</td>
</tr>
<tr>
<td></td>
<td>Gender</td>
<td>Male = 1</td>
<td>.139*** (.029)</td>
<td>.143*** (.036)</td>
<td>.080** (.038)</td>
</tr>
<tr>
<td></td>
<td>Gender</td>
<td>Education</td>
<td>.070*** (.006)</td>
<td>.071*** (.007)</td>
<td>.070*** (.008)</td>
</tr>
<tr>
<td></td>
<td>Gender</td>
<td>SES</td>
<td>.054*** (.016)</td>
<td>.021*** (.020)</td>
<td>.018 (.021)</td>
</tr>
<tr>
<td></td>
<td>Gender</td>
<td>Country</td>
<td>.049*** (.004)</td>
<td>.051*** (.004)</td>
<td>.057*** (.005)</td>
</tr>
<tr>
<td></td>
<td>Religion</td>
<td>1= Christian; 0= Non-Christian</td>
<td>-</td>
<td>-</td>
<td>-.174 (.129)</td>
</tr>
<tr>
<td></td>
<td>Religion</td>
<td>One Truth</td>
<td>-</td>
<td>-.244*** (.043)</td>
<td>-.048 (.049)</td>
</tr>
<tr>
<td></td>
<td>Religion</td>
<td>Ten Commandments Always Right</td>
<td>-</td>
<td>-.022*** (.001)</td>
<td>-.019*** (.004)</td>
</tr>
<tr>
<td></td>
<td>Religiosity</td>
<td>Belongs to Religious Denomination</td>
<td>-</td>
<td>-</td>
<td>-.075 (.136)</td>
</tr>
<tr>
<td></td>
<td>Religiosity</td>
<td>Religious Attendance</td>
<td>-</td>
<td>-</td>
<td>-.031*** (.010)</td>
</tr>
<tr>
<td></td>
<td>Religiosity</td>
<td>Finds Comfort/Strength in Religion</td>
<td>-</td>
<td>-</td>
<td>-.150*** (.053)</td>
</tr>
<tr>
<td></td>
<td>Religiosity</td>
<td>Self-identifies as Religious person</td>
<td>-</td>
<td>-</td>
<td>-.140*** (.047)</td>
</tr>
<tr>
<td>Intercep</td>
<td></td>
<td></td>
<td>-1.79*** (.067)</td>
<td>-1.28*** (.111)</td>
<td>-1.01*** (.123)</td>
</tr>
<tr>
<td>Observations used (n)</td>
<td>(max=5586)</td>
<td>12,328</td>
<td>8,324</td>
<td>7,728</td>
<td>12,911</td>
</tr>
<tr>
<td>Pseudo R Squared</td>
<td></td>
<td>0.073</td>
<td>0.081</td>
<td>0.106</td>
<td>0.087</td>
</tr>
<tr>
<td>Prob &gt;Chi2</td>
<td></td>
<td>&lt;.0001</td>
<td>&lt;.0001</td>
<td>&lt;.0001</td>
<td>&lt;.0001</td>
</tr>
</tbody>
</table>
6. Discussion

The finding that orthodoxy variables carried significant negative effect beyond religiosity, education, and other variables on the likelihood of appreciating a core competency for children’s development presents a complex puzzle. On the one hand, religiosity correlates with orthodoxy. Possibly a negative bias can be chalked up to religious belief. On the other hand, the results suggest there is something unique about the degree to which religious rules are seen as absolute or rigid, above and beyond religious identification, membership, and attendance. Would this effect hold for non-religious rules? Moreover, would this effect hold true for other religious rules, or are the Ten Commandments unique? Possibly some differences are explained by individual personality and attitudes toward rules in general, irrespective of whether these rules are religious or secular.

One implication for educators and policymakers may be the need for targeted interventions that educate Christian parents and communities with rigid religious ideas about the importance of imagination in children’s social, emotional, and cognitive development. This implication carries two components: first, consideration of whether rules are, in fact, being rigidly defined and enforced; second, whether this rule-orientation carries over into parenting styles or the treatment of children.

In a landmark paper, Diana Baumrind (1966) presented a theory of three prototypical parenting styles: authoritarian, authoritative, and permissive. While these styles vary in frequency of appearance from culture to culture as well as individual to individual (e.g. Chao, 1994), individuals with authoritarian styles tend to value obedience, and favor punitive, forceful measures to curb self-will: obedience is required without rule explanation. These parents are status-oriented (Baumrind, 1991), and often evaluate the behavior and attitudes of a child in accordance with a rigid standard of conduct, “usually an absolute standard, theologically motivated” (Baumrind, 1966, p 890). By comparison, individuals with authoritative parenting style value the child’s freedom to explore and make their own decisions based on their own reasoning (MacCoby, 1992).
Baumrind’s theory does not suggest an abandonment of rules. Rather, the difference is in application of the rules: one application engages the child’s capacity for imagination (authoritative), one does not (authoritarian). When disciplining a child for hitting another child, for example, an authoritarian parent is not likely to provide reasoning beyond status (“Because I said so”). An authoritative parent may respond, “Imagine how he/she feels when you hit him/her,” or “why do you think that was wrong?” to engage the child’s ability to reason and imagine different perspectives.

Summarizing several decades of research, MacCoby (1992) links authoritative parenting styles to the best developmental outcomes for children.

However, this discussion is contingent upon two assumptions: first, that orthodox thinking is causally linked to authoritarian parenting styles, and second, that these parenting styles and outcomes are valid across cultures. To this author’s knowledge, the first assumption has not been studied. The second assumption remains a subject of considerable debate among developmental psychologists. Laurence Steinberg (2001) argues that the benefits of authoritative parenting “transcends the boundaries of ethnicity, socioeconomic status, and household composition” (p 12), but other research has found weaker benefits, and sometimes negative effects, for African American and Asian American children compared to white Americans (e.g. Deater-Deckard et al., 1996). Ruth Chao (1994) suggests that authoritative parenting styles are functional for Asian Americans given a context of different religious values. Parental strictness for white children, she argues, is located in Protestant Christian beliefs, whereas for Chinese parents strictness is rooted in a notion of training (chiao shun and guan) that reflects role relationships defined by Confucianism. Chao suggests that the goal for the former is control, whereas the goal in the latter is harmony. Future research on the relationship between imagination and orthodoxy should therefore extend beyond Judeo-Christian samples.

One additional influence on values toward children’s socialization not explicitly studied in previous literature is sociopolitical context, including black-letter laws and economic context. For example, is the state economy driven by industries that value imagination and creative thinking? Do parents see creativity as important for their child’s future economic success? Future research may wish to compare the values of parents in closed societies, such as totalitarian dictatorships, to the values of
parents in open societies along factors of obedience, discipline, and conformity to rules. In closed
societies, it is plausible that parents envision their children’s future success in terms of capacity to follow
rules carefully, rather than generate new ideas.

Future research would benefit from recent data on attitudes towards the Ten Commandments, for
comparisons across time. However, the World Value Survey no longer maintains questions on the Ten
Commandments, so other measures and proxy variables may need to be developed. An additional
limitation is the variation of language. While the meaning of “imagination” as a general concept appears
consist across cultures, the valence of associations may vary widely. For instance, “imagination” in the
context of children’s socialization may have positive associations in one culture and negative associations
in another, even where the general meaning is the same. Data from sixteen Judeo-Christian countries
were included in the analysis in an effort to mitigate the effect of such interpretive variation.
7. Bibliography


