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Intelligence



Average intelligence predicts atheism rates across 137 nations

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ABSTRACT

Evidence is reviewed pointing to a negative relationship between intelligence and religious belief in the United States and Europe. It is shown that intelligence measured as psychometric g is negatively related to religious belief. We also examine whether this negative relationship between intelligence and religious belief is present between nations. We find that in a sample of 137 countries the correlation between national IQ and disbelief in God is 0.60.

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1. Introduction

Dawkins' (2006) recent book *The God Delusion* suggests that it is not intelligent to believe in the existence of God. In this paper we examine (1) the evidence for this contention, i.e. for whether there is a negative relationship between intelligence and religious belief; (2) whether the negative relation-

ship between intelligence and religious belief is a difference in Psychometric g ; and (3) whether there is negative relationship between intelligence and religious belief between nations.

2. Intelligence and religious belief within nations

We are by no means the first to suggest the existence of a negative relationship between intelligence and religious belief within nations. This phenomenon was observed in the 1920s by Howells (1928) and Sinclair (1928), who both reported studies showing negative correlations between intelligence and religious belief among college students of $-.27$,

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and $-.29$ to $-.36$ (using different measures of religious belief). In the 1950s [Argyle \(1958\)](#) concluded that “intelligent students are much less likely to accept orthodox beliefs, and rather less likely to have pro-religious attitudes”.

Evidence pointing to a negative relationship between intelligence and religious belief within nations comes from four sources. These are (1) negative correlations between intelligence and religious belief; (2) lower percentages holding religious beliefs among intelligence elites compared with the general population; (3) a decline of religious belief with age among children and adolescents as their cognitive abilities increase; (4) a decline of religious belief during the course of the twentieth century as the intelligence of populations has increased.

2.1. (1) Negative correlations between intelligence and religious belief

A number of studies find negative correlations between intelligence and religious belief. A review of these carried out by [Bell \(2002\)](#) found 43 studies, of which all but four found a negative correlation. To these can be added a study in the Netherlands of a nationally representative sample (total $N=1538$) that reported that agnostics scored 4 IQs higher than believers ([Verhage, 1964](#)). In a more recent study [Kanazawa \(in press\)](#) has analysed the data of the American National Longitudinal Study of Adolescent Health, a national sample initially tested for intelligence with the PPVT (Peabody Picture Vocabulary Test) as adolescents and interviewed as young adults in 2001–2 ($N=14,277$). At this interview they were asked: “To what extent are you a religious person?” The responses were coded “not religious at all”, “slightly religious”, “moderately religious”, and “very religious”. The results showed that the “not religious at all” group had the highest IQ (103.09), followed in descending order by the other three groups (IQs=99.34, 98.28, 97.14). The relationship between IQ and religious belief is highly significant ($F(3, 14273)=78.0381, p<.00001$).

2.2. (2) Lower percentages holding religious beliefs among intelligence elites compared with the general population

In corroboration of these studies finding negative correlations between intelligence and religious belief is evidence comparing the percentages of religious believers among intelligence elites compared with the general population. This was shown as early as 1921 in a survey of the religious beliefs of eminent American scientists and scholars that reported that 39% stated that they believed in God (with a range of 48% among historians to 24% among psychologists) ([Leuba, 1921](#)). It was reported by [Roe \(1965\)](#) that among a group of 64 eminent scientists, 61 were “indifferent to religion”, leaving approximately 4.8% as religious believers. These are much lower than the percentage religious believers in the population among whom 95.5% in the United

Table 1

Decline in percentage holding religious belief, with age ([Francis, 1989](#))

Age	N	Boys	Girls
5–6	400	87.9	96.0
11–12	400	79.6	84.1
15–16	400	55.7	70.4

Table 2

Declining belief correlates with age ($sd=15.6$) ([Turner, 1980](#))

Age	N	Belief (%)	R: non-belief x IQ
12	50	69.54	0.183
13	50	66.10	0.110
14	50	59.86	-0.113
15	50	57.94	-0.354*

* Significant at $p<.01$.

States stated that they believed in God in a 1948 Gallup Poll ([Argyle, 1958](#)). In the 1990s a study of members of the American National Academy of Sciences reported that 7% believed in the existence of God, as compared with approximately 90% found in a poll of the general population ([Larsen & Witham, 1998](#)). In Britain, it has been reported that 3.3% of Fellows of the Royal Society believed in the existence of God, while 78.8% did not believe (the remainder being undecided) ([Dawkins, 2006](#)). At the same time a poll showed that 68.5% of the general population believed in the existence of God.

2.3. (3) Decline of religious belief with age among children and adolescents

Also consistent with the negative correlation between intelligence and religious belief is the decline in religious belief during adolescence and into adulthood as cognitive ability increases. This has been found in the United States for the age range of 12–18 year olds by [Kuhlen and Arnold \(1944\)](#) who reported that among 12 year olds 94% endorsed the statement “I believe there is a God”, while among 18 year olds this had fallen to 78%. Similarly, in England [Francis \(1989\)](#) has found a decline in religious belief over the age range 5–16 years. Religious belief was measured by a scale consisting of questions like “God means a lot to me” and “I think that people who pray are stupid”, etc., and the scores on the scale are shown in abbreviated form in [Table 1](#). The finding that girls score higher than boys has frequently been found (see e.g. [Argyle, 1958](#)). In another study, among 12–15 year olds at a Protestant school in Northern Ireland, favourable attitudes to religion fell steadily and significantly ($p<.001$) with each year of age by approximately 0.75 of a standard deviation over the 4 year period, while the correlations between a favourable attitude to religion and IQ turned increasingly and significantly negative ($p<.001$) ([Turner, 1980](#)). These results are summarized in [Table 2](#). (These trends were less clear for a Roman Catholic school).

2.4. (4) Decline of religious belief during the course of the twentieth century as the intelligence of the population has increased

There is evidence for a decline of religious belief during the course of the last 150 or so years, while at the same time the intelligence of the population has increased. The increase in intelligence is a well-documented phenomenon that has become known as the Flynn effect. The decline of religious belief has been shown by statistics for church attendance and for belief in God recorded in opinion polls. For instance, in England self reported weekly attendance at church services in census returns (these numbers may be exaggerated) declined from 40% of the population in 1850, to 35% in 1900, to 20% in

1950, to 10% in 1990 (Giddens, 1997, p.460); Church of England Easter week communicants declined from 9% of the population in 1900 to 5% in 1970 (Argyle & Beit-Hallahmi, 1975); the attendance of children at Sunday schools declined from 30% of the child population in 1900 to 13% in 1960 (Goldman, 1965). In Gallup Polls 72% of the population stated in 1950 that they believed in God (Argyle, 1958), but by 2004 this had fallen to 58.5% (Zuckerman, 2007).

There has also been some decline of religious belief during the course of the last century in the United States. Hoge (1974) has reviewed several surveys that have found a decline of religious belief in college students. For instance, students at Bryn Mawr were asked whether they believed in a God who answered prayers. Positive responses were given by 42% of students in 1894, 31% in 1933, and 19% in 1968. Students enrolling at the University of Michigan were invited to provide a "religious preference". In 1896, 86% of students did so; in 1930 this had dropped to 70%, and in 1968 it had dropped to 44%. At Harvard, Radcliffe, Williams and Los Angeles City College the percentages of students who believed in God, prayed daily or fairly frequently, and attended church about once a week all declined from 1946 to 1966. Heath (1969) has also reported a decline in belief in God among college students from 79% in 1948 to 58% in 1968. Among the general population, Gallup Polls have found that 95.5% stated that they believed in God in 1948 (Argyle, 1958), but by 2004 this had fallen to 89.5% (Zuckerman, 2007).

3. Religious belief and psychometric *g*

To determine whether there is negative relation between religious belief and Psychometric *g* (the general factor in intelligence), the data from the National Longitudinal Study of Youth (NLSY97) have been analysed. The NLSY97 is a national sample selected to represent approximately 15 million American adolescents in the age range of 12–17 years in 1997. The subjects ($N=6825$) were asked about current religious preferences in addition and took the Computer Adaptive form of the Armed Services Vocational Aptitude Battery (CAT-ASVAB97). This test consists of twelve scales (10 power and 2 speeded). These were analysed in terms of Raschian probabilistic modelling and the resulting one-dimensional scale correlated .992 (Psychometric *R*) with general intelligence, *g*, (Principal Axis Factor Analysis ($t(N-2)=662.62$; $p<.000$). Atheists scored 6 *g*-IQ equivalent points higher than the combined group of subjects professing to one or another of a large number of different religions. The difference in general intelligence among atheists and believers was significant even without using weighted data ($t(1, 6.893)=2.87$; $p=.004$).

4. Intelligence and religious belief between nations

To investigate the relationship between intelligence and religious belief between nations we have taken the IQs of nations given in Lynn and Vanhanen's (2006) *IQ and Global Inequality*. This source shows that these national IQs have high reliability, as shown by the correlation of .92 between different measures, and high validity, as shown by the correlation of .83 between the IQs and educational attainment. The high reliability and validity of these national IQs have been confirmed by Rindermann (2007). We have taken figures for

Table 3

Correlations between the national IQs and religious disbelief

IQs	N countries	Non-believers	Range non-believers	R: non-belief x IQ
64–108	137	10.69%	<1% to 81%	+0.60
64–86	69	1.95%	<1% to 40%	+0.16
87–108	68	16.99%	<1% to 81%	+0.54

belief in God from Zuckerman (2007) who gives data for 137 countries representing just over 95% of the world's population. These data were collected from surveys mostly carried out in 2004, although in a few countries the surveys were a year or two earlier. Zuckerman collated these data from a number of different surveys in order to provide results that were as up-to-date as possible. Where he published more than one survey result for a given country we took the most recent one where this was indicated, but averaged them out where it was not. Zuckerman's figures consist of the percentages saying that they disbelieved in God, rather than the more frequent question asking for belief in God. Zuckerman draws attention to four problems associated with this data set. These are possible low response rates, weaknesses in random sample selection, regime or peer pressure influencing responses and problems of terminological variation between cultures over words such as 'religious' or 'secular'. Despite these possible sources of error however Zuckerman urges acceptance of the data by quoting Robert Putnam to the effect that "we must make do with the imperfect evidence that we can find, not merely lament its deficiencies."

The data for the national IQs and percentages asserting disbelief in God for the 137 countries are given in the Appendix A. It will be seen that in only 17% of the countries (23 out of 137) does the proportion of the population who disbelieve in God rise above 20%. These are virtually all the higher IQ countries.

The correlations between the national IQs and religious disbelief are given in Table 3. Row 1 gives the correlation of 0.60 for the total sample and is highly statistically significant ($p<.001$). To examine whether this relationship holds across the whole range of national IQs we have divided the nations into two groups of those with IQs between 64–86 and those with IQs between 87–108. Row 2 gives the data for the 69 countries with IQs between 64–86. In this group only 1.95% of the population are non-believers. There is a range between <1% and 40%, and the correlation between the two variables is only 0.16. Row 3 gives the data for the 68 countries with IQs between 87–108. In this group 19.99% of the population disbelieve in God. There is a range between <1% and 81%, and the correlation between the two variables is only 0.54 ($p<.001$). Thus, most of the variation in religious disbelief is among the higher IQ nations.

5. Discussion

The results raise four points of interest. First, the hypothesis with which we began this study was that there is a negative correlation between IQ and religious belief. We have reviewed considerable evidence for this negative relationship among individuals in the United States and Europe and have added a new data set confirming this. Second, we have shown that the negative relationship between intelligence

and religious belief is a difference in Psychometric *g*. Third, we have extended this hypothesis to an examination of whether a negative correlation between IQ and religious belief is present between countries. Using data from 137 countries we found a correlation of 0.60 between national IQs and disbelief in God. Although the measure used for the analysis across nations was for disbelief in God rather than for belief in God, we believe it can be reasonably assumed that disbelief in God is highly (negatively) correlated with belief in God. Hence, we conclude that the negative correlation between IQ and religious belief that has been found in numerous studies within nations is also present between nations.

Second, this conclusion raises the question of why should there be this negative correlation between IQ and belief in God. Many rationalists no doubt accept the argument advanced by Frazer (1922, p.712) in *The Golden Bough* that as civilisations developed “the keener minds came to reject the religious theory of nature as inadequate ... religion, regarded as an explanation of nature, is replaced by science” (by “keener minds” Frazer presumably meant the more intelligent). Others have assumed implicitly or explicitly that more intelligent people are more prone to question irrational or unprovable religious dogmas. For instance, some 60 years ago Kuhlen and Arnold (1944) proposed that “greater intellectual maturity might be expected to increase scepticism in matters of religion”. Inglehart and Welzel (2005, p.27) suggest that in the pre-industrial world, humans have little control over nature, so “they seek to compensate their lack of physical control by appealing to the metaphysical powers that seem to control the world: worship is seen as a way to influence one's fate, and it is easier to accept one's helplessness if one knows the outcome is in the hands of an omnipotent being whose benevolence can be won by following rigid and predictable rules of contact...one reason for the decline in traditional religious beliefs in industrial societies is that an increasing sense of technological control over nature diminishes the need for reliance on supernatural powers”.

Third, there are a few exceptions to the generally linear relationship between IQ and disbelief in God across nations. Two of the most anomalous are Cuba and Vietnam, which have higher percentages disbelieving in God (40% and 81%, respectively) than would be expected from their IQs of 85 and 94 (respectively). This is likely attributable to these being former or current communist countries in which there has been strong atheistic propaganda against religious belief. In addition, it has sometimes been suggested that communism is itself a form of religion in which *Das Capital* is the sacred text, Lenin was the Messiah who came to bring heaven on earth, while Stalin, Mao, Castro and others have been his disciples who have come to spread the message in various countries. On these grounds, it may be argued that many of the peoples of Cuba and Vietnam hold a variant of more conventional religious belief in God.

Fourth, the United States is anomalous in having an unusually low percentage of its population disbelieving in God (10.5%) for a high IQ country. The percentage disbelieving in God in the United States is much lower than in north west and central Europe (e.g. Belgium, 43%; Netherlands, 42%; Denmark, 48%; France, 44%; UK, 41.5%). One factor that could provide a possible explanation for this is that many Americans are Catholics, and the percentage of believers in Catholic countries in Europe is generally much higher than in Protestant countries (e.g. Italy, 6%; Ireland, 5%; Poland, 3%; Portugal, 4%; Spain, 15%). Another possible contribu-

tion to this has been continued high immigration of those holding religious beliefs. A further possible factor might be that a number of emigrants from Europe went to the United States because of their strong religious beliefs, so it may be that these beliefs have been transmitted as a cultural and even genetic legacy to subsequent generations. Parent–child correlations for religious belief are quite high at 0.64 (fathers–sons) and 0.69 (mothers–daughters) (Newcomb & Svehla, 1937). It has been found that religious belief has a significant heritability of around 0.40–0.50 (Koenig, McGruer, Krueger & Bouchard, 2005), so it could be that a number of religious emigrants from Europe had the genetic disposition for religious belief and this has been transmitted to much of the present population.

Appendix A

Country	IQ	% not believing in God
Afghanistan	84	0.5
Albania	90	8
Algeria	83	0.5
Angola	68	1.5
Argentina	93	4
Armenia	94	14
Australia	98	25
Austria	100	18
Azerbaijan	87	0.5
Bangladesh	82	0.5
Belarus	97	17
Belgium	99	43
Benin	70	0.5
Bolivia	87	1
Botswana	70	0.5
Brazil	87	1
Brunei	91	0.5
Bulgaria	93	34
Burkina Faso	68	0.5
Burundi	69	0.5
Cambodia	91	7
Cameroon	64	0.5
Canada	99	22
Central African Rep.	64	1.5
Chad	68	0.5
Chile	90	2
China	105	12
Colombia	84	1
Congo: Rep of (Brazz)	64	2.7
Costa Rica	89	1
Cote d'Ivoire	69	0.5
Croatia	90	7
Cuba	85	40
Czech Republic	98	61
Denmark	98	48
Dominican Republic	82	7
Ecuador	88	1
Egypt	81	0.5
El Salvador	80	1
Estonia	99	49
Ethiopia	64	0.5
Finland	99	28
France	98	44
Gambia	66	0.5
Georgia	94	4
Germany	99	42
Ghana	71	0.5
Greece	92	16
Guatemala	79	1
Guinea	67	0.5
Haiti	67	0.5

Appendix A (continued)

Country	IQ	% not believing in God
Honduras	81	1
Hungary	98	32
Iceland	101	16
India	82	3
Indonesia	87	1.5
Iran	84	4.5
Iraq	87	0.5
Ireland	92	5
Israel	95	15
Italy	102	6
Jamaica	71	3
Japan	105	65
Jordan	84	0.5
Kazakhstan	94	12
Kenya	72	0.5
Kuwait	86	0.5
Kyrgyzstan	90	7
Laos	89	5
Latvia	98	20
Lebanon	82	3
Liberia	67	0.5
Libya	83	0.5
Lithuania	91	13
Madagascar	82	0.5
Malawi	69	0.5
Malaysia	92	0.5
Mali	69	0.5
Mauritania	76	0.5
Mexico	88	4.5
Moldova	96	6
Mongolia	101	20
Morocco	84	0.5
Mozambique	64	5
Namibia	70	4
Nepal	78	0.5
Netherlands	100	42
New Zealand	99	22
Nicaragua	81	1
Niger	69	0.5
Nigeria	69	0.5
Norway	100	31
Oman	83	0.5
Pakistan	84	0.5
Panama	84	1
Paraguay	84	1
Peru	85	1
Philippines	86	0.5
Poland	99	3
Portugal	95	4
Romania	94	4
Russia	97	27
Rwanda	70	0.5
Saudi Arabia	84	0.5
Senegal	66	0.5
Sierra Leone	64	0.5
Singapore	108	13
Slovakia	96	17
Slovenia	96	35
Somalia	68	0.5
South Africa	72	1
South Korea	106	30
Spain	98	15
Sri Lanka	79	0.5
Sweden	99	64
Switzerland	101	17
Syria	83	0.5
Taiwan	105	24

Appendix A (continued)

Country	IQ	% not believing in God
Tajikistan	87	2
Tanzania	72	0.5
Thailand	91	0.5
Togo	70	0.5
Trinidad and Tobago	85	9
Tunisia	83	0.5
Turkmenistan	87	2
Uganda	73	0.5
Ukraine	97	20
United Arab Emirates	84	0.5
United Kingdom	100	41.5
United States	98	10.5
Uruguay	96	12
Uzbekistan	87	4
Venezuela	84	1
Vietnam	94	81
Yemen	85	0.5
Zambia	71	0.5
Zimbabwe	66	4

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