



Conservatism and cognitive ability

Lazar Stankov

National Institute of Education (NIE), 1 Nanyang Walk, Singapore

ARTICLE INFO

Article history:

Received 17 July 2008

Received in revised form 7 December 2008

Accepted 8 December 2008

Available online 3 February 2009

Keywords:

Conservatism

Intelligence

Multi-level

ABSTRACT

Conservatism and cognitive ability are negatively correlated. The evidence is based on 1254 community college students and 1600 foreign students seeking entry to United States' universities. At the individual level of analysis, conservatism scores correlate negatively with SAT, Vocabulary, and Analogy test scores. At the national level of analysis, conservatism scores correlate negatively with measures of education (e.g., gross enrollment at primary, secondary, and tertiary levels) and performance on mathematics and reading assessments from the PISA (Programme for International Student Assessment) project. They also correlate with components of the Failed States Index and several other measures of economic and political development of nations. Conservatism scores have higher correlations with economic and political measures than estimated IQ scores.

© 2009 Elsevier Inc. All rights reserved.

1. Introduction

There has been an increased interest in the construct of conservatism. Recent evidence indicates that some existing stereotypes are not supported by the available data. For example, Brooks (2006, 2008) reports that conservatives engage more than liberals in charitable activities and people on the political right are nearly twice as happy as those on the left. The work of Napier and Jost (2008) shows that conservatives tend to be happier than liberals because of their tendency to justify the current state of affairs and because they are less bothered by inequalities in the society. The focus of these investigators is on political conservatism – tendency to attach high importance to topics that are high on the agendas of right-wing political parties within a given society and, consequently, endorse these parties' candidates in elections. For example, a version of the USA Wilson–Patterson Conservatism Scale (WPC; see Wilson, 1973) used in a study reported by Bouchard et al. (2003) contained 28 items that asked participants to state how important topics such as abortion, property tax, gay rights, liberals and immigration

are.¹ In the studies reported in the main body of this paper, political conservatism was not examined directly. However, Jost, Glaser, Kruglanski, and Sulloway (2003) suggest that it is time to re-examine the links between political conservatism and a host of individual difference variables. A constellation of these individual difference variables may be called *Conservative syndrome*. Although an alternative label, psychological conservatism, may be more appropriate if one's aim is to contrast politics and psychology, the term syndrome appears to be adequate for a discourse within the field of psychology itself.

Jost et al.'s (2003) meta-analysis confirms that several psychological variables predict political conservatism. The list includes death anxiety; system instability; dogmatism; intolerance of ambiguity, low openness to experience, and uncertainty; need for order, closure, and negative integrative complexity; and fear of threat and loss of self-esteem. The theory of Jost et al. (2003) treats political conservatism as

¹ The remaining 23 topics from the list are: death penalty, astrology, x-rated movies, modern art, women's liberation, foreign aid, federal housing, democrats, military drill, the military draft, capitalism, segregation, moral majority, pacifism, censorship, nuclear power, living together, republicans, divorce, school prayer, unions, socialism, and busing (Bouchard et al., 2003).

E-mail addresses: lstankov@nie.edu.sg, lazondi@rocketmail.com.

motivated cognition and builds on a large body of research accumulated since the end of World War II. One antecedent is the approach advocated by Wilson's (1973) dynamic theory that also saw conservatism as a motivated response to uncertainty. The threat or uncertainty may derive from fear of death, anarchy, foreigners, dissent, complexity, novelty, ambiguity, and social change. Responses to these sources of uncertainty include superstition, religious dogmatism, ethnocentrism, militarism, authoritarianism, punitiveness, conventionality, and rigid morality. Wilson postulated that political conservatism derives from genetic sources (anxiety proneness, stimulus aversion, low intelligence, and physical unattractiveness) as well as environmental influences (parental coldness, punitiveness, rigidity, inconsistency, and low social class). Jost et al. (2003) summarize their own position in the following way: "The core ideology of conservatism stresses resistance to change and justification of inequality and is motivated by needs that vary situationally and dispositionally to manage uncertainty and threat." (p. 339).

In this paper, I examine the hypothesis that low cognitive ability may be related to conservative syndrome (or conservatism, for short) which, in turn, is defined in terms of measures of personality, social attitudes, values, and social norms. There are two ways to arrive at this assumption. First, we can assume that cognitive ability affects conservatism directly. Thus, the perceived threat may vary depending on cognitive level – sources of threat such as complexity, novelty, and ambiguity may be more threatening to those who score low as opposed to those who score high on cognitive tests. Second, we can postulate that there exists an independent process that influences both conservatism and cognitive functioning. A candidate for this role may be mental rigidity. My primary aim in this paper is to present evidence of correlation, not to test these two causal models.

A recent paper by Deary, Batty, and Gale (2008) provides developmental evidence for a link between intelligence assessed at the age of 10 and anti-traditional and liberal social attitudes (i.e., the opposite of conservatism) at age 30. They report the results of a structural equation modelling analysis that shows a significant direct path coefficient of .46 between a general cognitive factor *g* and a latent attitude trait they label as Liberal Non-traditional Social Attitudes.

1.1. Conservatism across the domains of Personality, Social Attitudes, Values and Social Norms

Our approach differs from previous work in the way we define and measure the construct of conservatism. This construct emerged, somewhat unexpectedly, in three studies (see Method section for further detail). The first study was designed to assess cross-cultural differences on a set of measures from the domains of Personality, Social Attitudes, Values and Social Norms. Measures from these domains have been used in previous studies of others and cross-cultural differences have been reported but no single study covered all four domains. Most of the information to be reported here derives from this first study (see Stankov & Lee, 2008). The second and the third study (see Stankov, 2007) were based on the US samples only. Structural (i.e., factor-analytic) results of these latter studies proved to be in agreement with the results of the first study.

In our work, conservatism is captured by a score – usually a factor score – obtained from several scales that were not developed specifically for the measurement of conservatism. Thus, it incorporates measures of Personality (Big Five from IPIP), Social Attitudes (Saucier, 2000; Stankov & Knežević, 2005), Values (Schwartz & Bardi, 2001), and Social Norms (GLOBE; House, Hanges, Javidan, Dorfman, & Gupta, 2004) – a total of 43 different subscale scores. Nevertheless, our analyses show the presence of a factor of *Conservatism* that has loadings from subscales from all these domains and captures many constructs that are included in the nomological net of Jost et al. (2003) and Wilson (1973). This factor is expected to correlate with cognitive ability for reasons outlined above.

What are the other factors that emerge from the analysis of 43 subscales? Are they also expected to correlate with cognitive ability? Stankov (2007) found three domain-related factors. They are quite different from the Conservatism factor in that they show very little overlap between the domains. These are:

- *Personality/Social Attitudes*. This is usually a bipolar factor contrasting Personality traits on the negative side and Social Attitudes on the positive side. Loadings of Personality traits on this factor are typically lower than loadings from the Social Attitudes measures. In some of our analyses, this factor splits into a separate Personality factor representing "good" evaluative processes (or perhaps social desirability) and a Social Attitudes factor representing anti- or amoral attitudes towards social objects (Stankov & Knežević, 2005).
- *Values*. See Method section for the interpretation of this factor.
- *Social Norms*. Several Social Norms scales from GLOBE study (House et al., 2004) load on this factor.

In this paper I report the analyses based on a smaller (22) number of variables that correspond quite closely to the solution obtained with the full set of 43 measures. Smaller number of variables is employed in order to carry out simultaneous (i.e., multilevel) structural equation modelling of individual- and country-level data that has not been reported in the past.

There is no empirical evidence or theoretical arguments in the literature that suggest a relationship between cognitive ability and Values or Social Norms.² Thus, it is reasonable to assume that these two constructs do not correlate with cognitive measures. The situation is different with the Personality/Social Attitudes dimension. Jost (2006) reports that Conscientiousness (positively) and Openness to Experience (negatively) correlate with Democrat/Republican voting preferences of the states within the U.S., interpreted as reflections of liberal/conservative tendencies. Openness to Experience is also known to correlate about .30 with measures of intelligence (Stankov, 2005; Stankov and Lee, 2008). The other side

² An unknown reviewer pointed to the fact that Values and Social Norms may be related to "moral" behavior and that neo-Piagetian theories argue for the link between such behavior and cognitive ability. This link is tenuous – measures of both Values and Social Norms are relatively new and their relationship to moral behavior is unknown at present.

of this bipolar factor, Social Attitudes, captured by Toughness, Maliciousness, and Betaism (i.e., non-PC motives for behavior), have qualities reminiscent of Dogmatism and Authoritarian personalities that are often seen as components of conservatism (see Jost et al., 2003). Since in our work they define a factor that is separate from conservatism, it is reasonable to assume that there is a separation between thuggish and rough Social Attitudes trait and Conservative syndrome that captures not only social attitudes but also Values, Social Norms, and Personality traits. These rough social attitudes are also likely to be related to cognitive ability – they often reflect difficulties or disinclination to make fine-grained analysis of a problematic situation (see Wilson, 1973).

1.1.1. Individual-level and country-level conservatism

Our work that led to the finding of the above four factors was motivated in part by interest in cross-cultural comparisons. In one of our studies, the participants came from both the U.S. and foreign countries. Within the tradition of cross-cultural psychology, total variances on measures of interest are split into two components – within level (or individual level) and between level (or country level). The country level variance–covariance matrix can be arrived at by calculating an aggregate measure such as arithmetic mean for all participants from a given country (see Hofstede, 2001). Thus, each of the 35 countries in our cross-cultural study will have a score on each of the 22 measures employed in this study, and a data reduction procedure like factor analysis can be applied to this 35 by 22 matrix. One issue of interest is whether the structures at individual and country levels are the same or different. If they are the same, it can be concluded that the same influences operate at both levels. If different, the assumption has to be that influences are not the same and the argument may be that the country level, not individual level, structure reflects true cultural differences.

Since our interest is in the relationship between conservatism and cognitive ability, the between-countries scores provide an opportunity to examine the same question from the cross-cultural perspective. Thus, if countries differ in terms of conservatism, how are these differences related to measures of countries' cognitive performance and educational achievements? What may be the cause(s) of country-level differences in conservatism?

While the individual level of analysis focuses on important psychological issues, the country-level analysis brings into focus important social policy issues. Together, they point to a link between psychological and political processes that has been neglected since the 1970s (Jost, 2006). The evidence for the existence of such a link at the country level is important since it may guide decisions related to the deployment of resources.

Apart from showing the link between cognitive performance and conservatism, country-level analyses allow for the examination of broader issues. For example, they provide for an opportunity to examine the relationship of these two constructs with other country-level measures, including various economic and social indicators.

The link between IQ, economic measures of wealth and a host of other variables has been explored extensively. For example, according to Kanazawa (2006; p. 593) the mean Pearson's product-moment correlation between national IQ

and various measures of Gross Domestic Product (GDP) across numerous years among the 185 nations that is reported by Lynn and Vanhanen (2002, pp. 110–116) is .577. Lynn and Vanhanen (2006) interpret these correlations as showing that IQ is an important factor contributing to the differences in national wealth and rates of economic growth. Rindermann (2007; Table 4, p. 686) reported correlations between the sum of several cognitive ability measures and GDP in year 1998 to be .63. In his subsequent papers (Rindermann, 2008a,b) he also reports correlations between IQ estimates and country-level measures of education, democracy, the rule of law and many other economic and social indicators.

Similar country-level correlations between Conservatism and economic and social indicators do not exist in the literature. If they turn out to be of the same order of magnitude, shall we assume that Conservatism is another “important determinant” like IQ? Our data will allow us to address this issue.

I employ structural equation modelling and multilevel procedures (Muthén, 1994) and regression analysis to examine the nature of conservatism at both the individual and country levels.

1.1.2. Aims

My aims in this paper are threefold. First, I present structural evidence for the existence of stable factors at both the individual- and country-levels of analysis. Although the overall structure at the individual and country levels may differ, a conservatism factor is expected to emerge at both levels. Second, correlations between factor scores from both levels of analysis with individual- and country-level cognitive measures are presented. Individual cognitive measures are scores on typical aptitude tests. Country-level proxies for cognitive measures are both statistics regarding educational enrolment and scores from the objective achievement tests. My expectation is that the strength of the individual- and country-level conservatism will be negatively correlated with cognitive ability scores. Third, I report on the relationship between Conservatism and a host of country-level economic and sociological variables. The aim is to compare predictive validities of IQ and Conservatism scores.

2. Method

2.1. Participants

The findings to be reported in this paper derive from three studies, all of which employed the same set of measures from the four domains of Personality, Social Attitudes, Values, and Social Norms. The first study ($N = 1600$) was a cross-cultural study with participants from 73 countries. These were the people who took the Test of English as a Foreign Language (TOEFL iBT) as a prerequisite for enrolment, mostly in graduate schools, at U.S. universities. The samples of participants from different countries are not representative and may differ from the parent population in many ways. After taking TOEFL, they were asked to participate in a separate survey for a \$20 payment. The second ($N = 430$) and third ($N = 824$) studies employed students from 22 community colleges from across the U.S. The data presented in Table 1 are based on the first and second studies. I added the second sample to the first

Table 1

Multilevel solution: individual level and country level structure (standardized coefficients; blank cells were fixed at zero in the analyses based on covariance matrices)

Measures	Within (individual level) factors				Between (country-level) factors	
	Personality/Social Attitudes	Values	Social Norms	Conservatism	Broad Conservatism	Broad Personality/Social Attitudes/Norms
<i>Big 5 personality traits (IPIP: ipip.ori.org/ipip/)</i>						
1. Extraversion	-.10	.18				-.81
2. Agreeableness	-.48	.22		.16		-.88
3. Conscientiousness	-.29			.38	.67	-.45
4. Emotional Stability	-.34					-.65
5. Openness	-.32	.31				-.96
<i>Dimensions of social attitudes (Stankov & Knežević, 2005)</i>						
6. Toughness	.77			-.18		.97
7. Maliciousness	.78					.95
<i>Dimensions of social attitudes (Saucier, 2000)</i>						
8. Alphaism		-.18		.50	.97	
9. Betaism	.43			.20		.71
10. Gammaism	.28			.42		.62
11. Deltaism				.51	.89	
<i>Values (Schwartz) Factor Scores (Stankov & Knežević, 2005)</i>						
12. Self-indulgence/Self-transcendence	-.11	.99			.32	-.89
13. Conformism/Individualism		.65		.40	.83	-.32
<i>Social Norms (GLOBE; House et al., 2004)</i>						
14. Uncertainty avoidance			.36			.60
15. Future orientation			.36		-.58	.66
16. Power distance			-.40		.61	-.62
17. Institutional collectivism			.16			
18. Humane orientation			.48		.72	.42
19. Performance orientation			.74			.77
20. In-group collectivism				.26	.88	
21. Gender egalitarianism			.18		-.66	
22. Assertiveness	-.16					

sample (1600 + 430) and removed from this total sample all those participants who came from the countries that had less than 9 participants. The findings in Table 1 are based on 1895 participants who came from 35 different countries, each having at least 9 participants.

The three studies are treated separately because each contained different cognitive measures. A sample of participants in the first study ($N=288$) also took an Analogies test. All participants in the second study took a Synonyms Vocabulary test, and a sample ($N=732$) from the third study provided information about their SAT total scores.

2.2. Measures

A total of 316 items that formed 43 scale scores embedded in 6 different instruments was employed. They were all delivered over the Internet in English. To work with a manageable number of variables, the original larger 43-variable data set was reduced to a smaller (22-variable) data set in this paper. The reduction is based on the elimination of 12 variables with missing data and on the replacement of 11 scales of Schwartz's Value Survey (SVS) with 2 factor scores.

2.2.1. Domain: Personality traits

For the measurement of Big Five personality factors (e.g., Saucier & Goldberg, 2002), I used a 50-item scale available

from the International Personality Item Pool (IPIP; may be accessed on the Web at ipip.ori.org/ipip/).

1. *Extraversion*
2. *Agreeableness*
3. *Conscientiousness*
4. *Emotional Stability* (vs. neuroticism).
5. *Openness*.

2.2.2. Domain: Social Attitudes

Toughness and maliciousness. These two scales are based on work designed to examine demographic and psychological aspects of antisocial and criminal behavior in Serbia during the early 1990s. Stankov and Knežević's (2005) study compared performance of Serb and Australian students on these scales. Measures used in the present study are derived from that earlier work. A 5-point Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree) was employed.

6. *Toughness* (machismo, hard realism, street wisdom, Machiavelianism). Example: "I cannot accept any restrictions or rules."
7. *Maliciousness* (poor impulse control, sadism, resentment, brutality). Example: "If I had complete power over people, many would regret the day they were born."

Saucier's “-isms.” Saucier's (2005) 28-item questionnaire measuring the four dimensions below was employed. The rather uncommon labels for these scales are based on Saucier's writings. The instrument employs a 5-point Likert-type scale ranging from 1 (strongly and completely disagree) to 5 (strongly and completely agree).

8. *Alpha* scale reflects the degree to which an individual subscribes to conventional religious beliefs (Legalism, Institutionalism, Secularism, Evolutionism). Example: “Religion should play the most important role in civil affairs.”
9. *Beta* scale reflects the degree to which an individual subscribes to various justifications of self-interest (non-PC motives for behavior: Materialism, Sensualism, Fascism). Example: “Worldly possessions are the greatest good in life.”
10. *Gamma* scale reflects the degree to which an individual subscribes to patriotism, constitutionalism, humanism, existentialism, neoliberalism, and functionalism (sometimes referred to as Western democracy beliefs). Example: “I love and am devoted to my country.”
11. *Delta* scale reflects the degree to which an individual subscribes to subjective experiences, including paranormal experiences (sometimes referred to as personal mysticism: Hinduism, Transcendentalism, Zen Buddhism, Animism). Example: “Some objects have magical powers.”

Social attitudes captured by both Stankov and Knežević's and Saucier's measures are of the antisocial rather than pro-social variety. Stankov and Knežević (2005) refer to these as “Amoral Social Attitudes.”

2.2.3. Domain: Values

Schwartz and Bardi (2001) developed Schwartz's Values Survey (SVS), a theory of human values postulating 11 basic dimensions along which societies may be differentiated. The Value Survey is used to assess how important each value is as a guiding principle in one's own life. A total of 57 items are rated on a 9-point Likert-type scale ranging from – 1 (opposed to my values), 0 (not relevant) to 7 (of supreme importance), and those items were classified into 11 scales having three to eight items each. The 11 scales are as follows: *Power* (assessing the importance of authority, wealth, social power, public image and social recognition); *Achievement* (assessing the importance of ambition, success, capacity, influence, and intelligence); *Hedonism* (assessing the importance of pleasure and enjoyment of life); *Stimulation* (assessing the importance of variety and excitement); *Self-direction* (assessing the importance of creativity, freedom, independence, and curiosity); *Universalism* (assessing the importance of broadmindedness, social justice, equality, and the world at peace); *Benevolence* (assessing the importance of helpfulness, loyalty, forgiveness, honesty, and responsibility); *Traditionalism* (assessing the importance of respect for tradition, humility, devoutness, and moderation); *Conformity* (assessing the importance of obedience, self-discipline, and politeness); *Security* (assessing the importance of social order, family security, national security, and sense of belonging); and *Spirituality* (assessing the importance of meaning of life, sense of inner harmony, and

sense of detachment). The main reason for using factor scores instead of the scales themselves derives from a need to reduce the number of variables in the battery.

Stankov and Knežević (2005, p. 122) and Stankov (under review A) carried out exploratory factor analyses of the SVS and obtained two factors. I employ the factor scores from Stankov (under review A) in the analyses of this paper. The interpretation of the two factors is as follows:

12. *Self-indulgence/Self-transcendence*. The variables that define this factor include Self-directedness, Stimulation and Hedonism, all of which represent individualistic, self-indulging value orientations. The other three variables — Benevolence, Spirituality, and Universality — are not primarily individualistic. They indicate a focus on social context outcomes, implying a value orientation that is sometimes referred to as Self-transcendence. Thus, the factor indicates value orientations that combine a tendency to enjoy life on one hand and, at the same time, be charitable to others and appreciate the broader social context of life.
13. *Conformism/Individualism*. The variables that define this factor are Traditionalism, Conformism, and Security, all of which indicate a conservative value orientation. However, this orientation is also characterized by Power (social power, social recognition) and Achievement (ambition, success, influence), both of which are indicative of an individualistic value orientation.

2.2.4. Domain: Social Norms

There are nine main Social Norm dimensions that emerged from the GLOBE research project (e.g., House et al., 2004). All statements were prefaced with “In my society...” and the participant had to answer on a 7-point Likert-type scale ranging from 1 (strongly agree) to 7 (strongly disagree). A total of 39 statements are used to assess:

14. *Uncertainty Avoidance*. (The extent to which members of an organization or society strive to avoid uncertainty by relying on established social norms, rituals, and bureaucratic practices). Example: “Most people lead highly structured lives with few unexpected events.”
15. *Future Orientation*. (The degree to which individuals in organizations or societies engage in future-oriented behaviors such as planning, investing in the future, and delaying individual or collective gratification). Example: “Most people live for the present rather than the future.”
16. *Power Distance* (The degree to which members of an organization or society expect and agree that power should be stratified and concentrated at higher levels of an organization or government). Example: “Followers are expected to obey their leaders without question.”
17. *Institutional Collectivism* (The degree to which organizational and societal institutional practices encourage and reward collective distribution of resources and collective action.) Example: “Leaders encourage group loyalty even if individual goals suffer.”
18. *Humane Orientation* (The degree to which individuals in organizations or societies encourage and reward individuals for being fair, altruistic, friendly, generous, caring,

- and kind to each other.) Example: “People are generally very tolerant of mistakes.”
19. *Performance Orientation* (The degree to which an organization or society encourages and rewards group members for performance improvement and excellence.) Example: “Students are encouraged to strive for continuously improved performance.”
 20. *In-Group Collectivism*. (The degree to which individuals express pride, loyalty, and cohesiveness in their organizations or families.) Example: “Employees feel great loyalty toward their organization.”
 21. *Gender Egalitarianism* (The degree to which society minimizes gender role differences while promoting gender equality.) Example: “Boys are encouraged more than girls to attain higher education.”
 22. *Assertiveness* (The degree to which individuals in organizations or societies are assertive, confrontational, and aggressive in social relationships.) Example: “People are generally dominant in their relationships with each other.”

3. Results

3.1. Individual- and country-level structure

Table 1 presents the outcome of the multilevel factor analysis carried out with Mplus (Muthén & Muthén, 2005) software. Multilevel analysis fits simultaneously within-individual and between-countries covariance matrices. The left side in Table 1 shows individual-level factor loadings, and the right side presents between-countries factor loadings. All coefficients in this table are standardized – they correspond to significant coefficients in the fitted covariance matrices solution. The overall goodness-of-fit statistics for this model are acceptable to good, e.g., the Root Mean Square Error of Approximation (RMSEA) being equal to .057.

The *individual-level structure* is in agreement with several other factor analytic results from our laboratory. The factors are:

1. *Personality/Social Attitudes*. This is a bipolar factor with (Amoral-)Social Attitudes (Toughness, Maliciousness, Betaism, and Gammaism) at the positive pole and personality at the negative pole. In this analysis, low negative loadings from Self-Indulgence/Transcendence and Assertiveness are also present on this factor. This, however, is not a common finding in our work. Negative loadings from Personality are lower in size than positive loadings from the other measures. Those having high scores on this factor can be described as psychologically rough people (e.g., agreeing with tough, malicious statements, low on agreeableness and expressing politically non-correct views).
2. *Values*. The highest loadings on this factor are from the factor scores representing the two Values dimensions that underlie Schwartz’s Values Survey (SVS). If all 11 SVS scales were to be included in the analyses, a single Values factor would appear, and loadings from the personality scales (Agreeableness, Conscientiousness, Openness) and Alphaism would be much smaller or nonexistent on this factor (Stankov, under review A).

3. *Social Norms*. Seven out of nine GLOBE measures define this factor, and there are no other significant loadings.
4. *Conservatism*. This factor is defined by the four Saucier’s measures: Social Attitudes (largely by two: Alphaism and Deltaism), the Conformism/Individualism factor from the domain of Values, the Personality factor of Conscientiousness, and In-Group Collectivism from the domain of Social Norms. The presence of loadings from Agreeableness and (negative) Toughness is not a common finding with this factor. It should be kept in mind that all individual-level analyses for the three studies that provided cognitive measures reported in Table 2 below contained core conservatism scores, but, as expected, the actual loadings varied from study to study (see footnotes in Table 2).

The *Between-countries* analysis produced two factors:

1. *Broad Conservatism* factor. As can be seen on the right side of Table 1, the first factor has loadings from Alphaism (religious sources of authority), Deltaism (personal spiritualism), In-Group Collectivism, Conscientiousness, and Conformism/Individualism. All these are the core variables of conservatism at the individual level. In addition, this factor has loadings from four Social Norms measures and Self-Indulgence/Self-Transcendence that were not a part of the Conservatism factor at the individual level. Thus, the between-countries factor of Conservatism is somewhat broader than the corresponding individual-level factor; it captures a bit of variance from Social Norms and Values that is not captured by the individual-level factor.
2. *Broad Personality/Social Attitudes/Social Norms* factor. This, again, is a bipolar factor, with all Personality measures in addition to Values factors (Self-Indulgence/Self-Transcendence and Conformism/Individualism) and Power Distance having negative loadings. Positive loadings are from Social Attitudes (Toughness, Maliciousness, Betaism, and Gammaism) and from four Social Norms factors. Thus, although the core of this between-countries factor resides in Personality and Social Attitudes, it is again broader than the corresponding within-individual factor because it captures Values and Social Norms.

The two between-countries factors correspond largely to Conservatism and Personality/Social Attitudes individual-level factors, with Values and Social Norms split about equally

Table 2
Individual level: correlations of four factor scores and cognitive measures

Variable	(Amoral-)Social Attitudes/Personality	Values	Social Norms	Conservatism
SAT $N = 732^a$	-.28**	-.10*	-.09	-.35**
Vocabulary Accuracy $N = 430^b$	-.48**	-.05	-.10	-.40**
Analogies $N = 288^c$	-.21**	.16*	.10	-.23**

^a Conservatism is defined by Alphaism, Deltaism, Tradition, Conformity, Harshness Toward Outsiders, and (–)Openness.

^b Conservatism is defined by Alphaism, Tradition, Conformity, Conscientiousness, (–)Openness, In-Group Collectivism, Spirituality and Harshness Toward Outsiders.

^c Conservatism is defined by Alphaism, Tradition, Conformity, and In-Group Collectivism.

between them. Factor scores on the two between-countries factors are used in the analyses reported in Table 3.

Factor intercorrelations at the individual level are generally low and different from zero for Conservatism factor only. Thus, Conservatism correlates .39 with the Values factor and .22 with the Social Norms factor. As expected, Conservatism has negative and low correlation (–.211) with the Personality/Social Attitudes factor. At the country-level, correlation between the two broad factors was fixed at zero in the fitted solution.

3.2. Conservatism syndrome described

A description of the Conservative syndrome based on the results of factor analysis presented in this paper and in other studies of ours that contained measures that were not analyzed in this paper is as follows. The Conservative syndrome describes a person who attaches particular importance to the respect of tradition, humility, devoutness and moderation (i.e., Traditional values) as well as to obedience, self-discipline and politeness (i.e., Conformist values), social order, family, and national security (Security values) and has a sense of belonging to and a pride in a group with which he or she identifies (In-group Collectivism). A Conservative person also subscribes to conventional religious beliefs (Alphaism) and accepts the mystical, including paranormal, experiences (Deltaism). The same person is likely to be less open to intellectual challenges (Openness) and will be seen as a responsible “good citizen” at work and in the society (Conscientiousness) while expressing rather harsh views toward those outside his or her group (Harshness Towards Outsiders).

Conservatism at both individual and country level is strongly linked to religiosity – both Alpha (religious sources of

authority) and Delta (personal spiritualism) scales (Saucier, 2000) have high loadings on individual- and country-level factors of Conservatism. A recent review by Lynn, Harvey, and Nyborg (2007) reports that in a sample of 137 countries the correlation between national IQ and belief in God is $r = -.60$. Nevertheless, given the pattern of loadings in Table 1 and other analyses of the data (e.g., Stankov, 2007) it is apparent that Conservatism syndrome is broader than religiosity and cannot be reduced to the latter.

3.3. Common cause at individual and country levels?

The results presented in Table 1 show similarity, albeit not complete correspondence, between the factors at two levels of analysis. This is important evidence that indicates that problems associated with *ecological fallacy* (Robinson, 1950) may be relatively small in our data. Ecological fallacy is an error in the interpretation of statistical data whereby inferences about the nature of individuals are based solely upon aggregate statistics collected for the group to which those individuals belong. In principle, this may or may not be true and doing the analyses at both levels provides a way to test the underlying assumption of the common cause. The fact that they are similar across the levels indicates that whatever sources or common causes operate to generate factors at the country level may be similar to the causes that operate at the individual level.

3.4. Correlates of Conservatism

The following sections examine correlations between the individual and country-level Conservatism factors with measures of cognitive abilities and, at a country level, with a host of other indicators of economic and social development. The pattern of these correlations can inform about the psychological nature of the obtained factors.

3.4.1. Individual level: correlations with tests of cognitive abilities

Table 2 presents correlations between the four sets of factor scores and three different cognitive measures. A consistent trend is clearly present across the three rows: significant correlations appear for Conservatism and (Amoral-) Social Attitudes/Personality (reverse loadings from Table 1). Clearly, people who score low on measures of cognitive abilities tend to endorse more strongly Conservative statements. The lowest correlation is for Analogies scores which were obtained from a sample of TOEFL test-takers, possibly the highest ability group in our studies that is likely to be prone to the restriction in range effects. Those scoring low on cognitive ability are also strongly supportive of (Amoral) Social Attitude statements. In other words, these are the macho, tough people who are not prepared to accept “soft” solutions to problems that arise in social interactions. Independence between the first and the fourth factor in Table 1 implies that Conservatism is different from (Amoral) Social Attitudes – one can be, for example, conservative and tough or conservative and “soft”. Nevertheless, both are negatively related to intelligence.

The other two factors – Values and Social Norms – have considerably lower correlations with cognitive measures, with

Table 3
Country level correlations of between-countries factor scores and extension variables

	Between-countries factors	
	Broad Conservatism	Broad Personality/Social Attitudes/Norms
1. Education (van Hermert et al., 2002)	–.69**	–.20
2. Average IQ 1950–1999 (Lynn & Vanhanen, 2002)	–.73**	.17
3. PISA Composite of Math, Science, Reading (OECD, 2004)	–.70**	.22
4. Failed States Index (FSI): Total Score (The Fund for Peace)	.80**	.05
5. FSI: mounting economic pressures	.70**	.15
6. FSI: massive movement of refugees	.50**	.01
7. FSI: legacy of vengeance	.51**	.21
8. FSI: chronic and sustained human flight	.72**	.00
9. FSI: uneven economic development	.58**	–.05
10. FSI: sharp and/or severe economic decline	.67**	–.22
11. FSI: criminalization of the state (corruption of ruling elites and their link to crime syndicates)	.79**	.02
12. FSI: progressive deterioration of public services	.78**	–.01
13. FSI: widespread violation of human rights	.68**	.10
14. FSI: security apparatus as “state within state”	.78**	–.03
15. FSI: rise of factionalized elites	.67**	.13
16. FSI: intervention of other states	.63**	.17

(Note: ** indicates that correlation is significant at the .01 level.)

four out of six coefficients not being significantly different from zero. The highest correlation (.16) is with the Values factor. This correlation is at least in part due to the loading of Openness on the Values factor in Table 1 since Openness tends to correlate about .30 with measures of cognitive abilities (see Stankov and Lee, 2008).

Thus, in accordance with the expectations, Conservatism and (Amoral) Social Attitudes factors show negative correlations with cognitive measures supporting the hypothesis that those endorsing conservative views have low cognitive abilities. This is in agreement with the assumption that people with lower cognitive abilities may perceive threat and uncertainty where more capable people do not see it and therefore express more conservative views than those with high cognitive abilities. This is also consistent with the view that a common causal mechanism may underlie individual differences in both conservatism and cognitive ability.

3.4.2. Between-countries level: correlations between Conservatism and cognitive abilities

In order to find out if the two between-countries factors show the same trends as individual-level factors, we examine their relationship with a selection of country-level variables. These latter variables for 35 countries were compiled from four sources: the study of structural equivalence of Eysenck's Personality Questionnaire (EPQ) by van Hemert, van de Vijver, Poortinga, and Georgas (2002); World Database of Happiness (Veenhoven, 2007); The Fund for Peace (www.fundforpeace.org); and Organization for Economic Co-operation and Development (OECD, 2004). We employ the following country-level measures:

1. *Education* – the teacher–pupil ratio, proportion of population of a particular age that is enrolled at primary, secondary, and tertiary levels, and percentage of adult illiterates (van Hemert et al., 2002);
2. *Intelligence* – IQ tests in general population samples completed with estimates based on observations in comparable countries. Period 1950–1999. From Veenhoven, based on Lynn and Vanhanen (2002) Table 6.5.
3. *PISA* (OECD, 2004) – Programme for International Student Assessment (PISA), the assessment program for 14- to 15-year-olds carried out every three years by the Organization for Economic Co-Operation and Development (OECD, 2004). This measure is a simple composite of country's *Maths, Science and Reading* scores.
4. *Failed States Index: Total Score, 2006* – a ranking of 146 countries in the world in terms of three groups of indicators – Social, Economic, and Political – carried out on a yearly basis by The Fund for Peace. In 2006; the list was headed by Sudan, with Norway being on the opposite, non-failed, end.
5. to 18. *Components of the Failed States Index*. These are listed in Table 3 – they are self-explanatory.

The measures are strategically chosen from a set of over 1000 country-level indices that have been compiled from the four sources listed above. The first three are indices of cognitive performance, with PISA results representing an objective direct measure of a country's standing, Average IQ being an estimate of the overall cognitive capacity, and Education being a general measure of the success of a country's educational endeavors.

Table 4

Summary of regression analyses using Rindermann's Country IQ estimates and Conservatism scores as predictors and measures of economic and political status as criteria

Criterion	R-square	Standardized betas	
		Rindermann IQ estimate	Conservatism syndrome
1. Failed States Index Total	.652	–.293 (ns)	.565**
2. Gross Domestic Product per Capita (GDP 2007)	.698	.096 (ns)	–.763**
3. Rule of Law	.632	.320 (ns)	–.531**
4. Democracy	.476	–.136 (ns)	–.788**
5. Freedom	.275	.074 (ns)	–.466 (ns)

Countries included in the analyses ($N=31$): Albania, Argentina, Austria, Brazil, China, Colombia, Costa Rican, Cyprus, Ecuador, El Salvador, Ethiopia, France, Germany, India, Indonesia, Italy, Japan, Korea, Malaysia, Mexico, Morocco, Nigeria, Philippines, Romania, Russia, Spain, Sri Lanka, Taiwan, Thailand, Turkey and USA. (Note: ns = not significant; ** = significant at .01 level).

As can be seen in Table 3, all three country-level cognitive measures have significant negative correlations with the Broad Conservatism scores and non-significant correlations with the Broad Personality/Social Attitudes/Norms factor.

Correlations with the twelve components of the Failed States Index (FSI, variables 7 to 18) are also presented in Table 3 to illustrate our general finding with a host of other indicators that are not educational or cognitive in nature. Many more variables from those we have examined show the same pattern of correlations – high correlations with Conservatism scores and nonsignificant correlations with the Broad Personality/Social Attitudes/Norms scores. They include economic indicators, mass communication measures, estimates of freedom based on the functioning of political and legal systems, church attendance and other measures of religious practices, and many indicators of the general “health” of countries in the world. Because of this pattern of correlations, the Conservatism factor from our work can be seen as yet another index of a country's development or, perhaps, as an indicator of the affluence factor suggested by Georgas, van de Vijver, and Bery (2004).

3.4.3. Between-countries level: Conservatism and Country IQ as predictors of the Failed States Index

As mentioned in the Introduction, our country-level data allow for the examination of the relative roles of Average IQ and Conservatism of counties in relationship to the economically and socially important criteria.

Using the Failed States Index Total score as a criterion and country-level Conservatism factor scores and Average IQ as markers gives us an R -square of .652 and standardized beta coefficients equal to .565 and –.293, respectively (see the first row in Table 4). When entered first, Conservatism scores capture 61% of the variance. When entered second, Conservatism scores add about 14% of predicted variance above Average IQ.³ Thus, in isolation from all other measures,

³ I am grateful to an unknown reviewer who called to my attention the recent work of LeBreton and Tonidandel (2008). These authors have developed an improved procedure based on multivariate relative weights that can be used to evaluate the importance of predictors included in a regression analysis. I shall use this procedure in future analyses of our data.

Conservatism is a better marker of FSI than is the Average IQ. Lynn and Vanhanen (2002) claim that IQ is “an important factor contributing to differences in national wealth.” Our data lead to the conclusion that low level of Conservatism may also be an even more important factor contributing to country’s success as a state.⁴

3.4.4. Between-countries level: Conservatism and Country IQ as predictors of wealth, democracy, the rule of law, and freedom

In a couple of recent papers Rindermann (2008a,b) examined the effects of IQ and education on several country-level measures of national welfare and political development (assessment of the wealth, rule of law, freedom, and democracy).⁵ The outcomes of four regression analyses are summarized in Table 4. In these analyses, Rindermann’s estimates of countries’ cognitive ability were entered first and countries’ Conservatism scores were entered second.

A measure of country’s wealth is the *Gross Domestic Product per capita* (GDP). This is defined as “the value of all final goods and services produced within a nation in a given year, divided by the average population for the same year.” The GDP values were retrieved on Oct. 29, 2007 from the following site: [http://en.wikipedia.org/wiki/List_of_countries_by_GDP_\(nominal\)_per_capita](http://en.wikipedia.org/wiki/List_of_countries_by_GDP_(nominal)_per_capita).

It is apparent from the values presented in Table 4 that both IQ and Conservatism can account for a significant percentage of variance (69.80%) in GDP. It is also apparent from the comparison of standardized beta weights that Conservatism is a better predictor of GDP – beta weight for IQ is not significant. In these data, raw correlation between GDP is higher (absolute value) with Conservatism scores (–.833) than it is with the estimated nations’ IQ scores (.652).⁶ Thus, at the nations’ level of analysis, Conservatism scores are better predictors of GDP than are the estimated cognitive ability, or IQ scores.

It is clear from Table 4 that similar findings have been obtained for the Rule of Law and for Democracy measures. In both cases Conservatism is a better marker of the criteria than IQ or cognitive ability. For the last criterion measure, Freedom, the value of the multiple correlation coefficient was low (*R*-square equal to .275 and not significant at the .01 level) and neither IQ nor Conservatism had significant beta coefficients.

Overall, both IQ and Conservatism are important in assessing the country’s economic and political status, with Con-

servatism showing a somewhat better predictive validity. Again, I wish to refrain from making causal inferences. All that can be said from the data at hand is that two psychological variables – cognitive ability (or IQ) and Conservative syndrome – appear to form a nexus with demographic, economic, sociological, health and political/legal variables at the country level of analysis.

3.5. Individual-level factors vs. between-countries broad factors

An interesting difference between the two main factors emerges from the comparison of the patterns of correlation in Tables 2 and 3. The Personality/Social Attitudes score is related to cognitive ability at the individual level, but this correlation does not hold for the Broad Personality/Social Attitudes/Norms factor at the between-countries level. There are at least three possible reasons for this difference in patterns of correlations. First, cognitive variables differ between the two levels of analysis. It can be argued that if the same cognitive measures were involved at both levels, the pattern of correlations would be the same. This is an unlikely explanation. Cognitive variables are known to correlate among themselves and, normally, one would not expect such dramatic differences. Second, despite the apparent similarity between the narrow and Broad Personality/Social Attitudes/Norms factors, there are differences in the pattern and size of factor loadings. For example, as can be seen in Table 1, the loadings of Personality and Betaism and Gammaism measures on the Broad Personality/Social Attitudes/Norms are higher than on the corresponding individual-level narrow factor. These differences might have led to reduced correlations at the between-countries level. I feel, however, that the differences in correlations are too large in comparison to the differences in factor loadings between the two levels, and this interpretation is unlikely to be true. Third, the differences may be genuine, i.e., Broad Personality/Social Attitudes/Norms do not correlate with country-level cognitive and economic development indices. Since we do not have sufficient understanding of why this may be the case, it is prudent to await replication of these findings.

In the meantime, we can safely conclude that both individual-level and between-countries Conservatism factors have negative correlations with cognitive abilities. The scarcity of significant correlations between the Broad Personality/Social Attitudes/Social Norms factor and other variables can be seen as evidence for discriminant validity of the two broad country-level factors.

4. Discussion

The purpose of this paper was to examine the evidence relevant to the hypothesis that low cognitive ability is associated with high conservatism. This hypothesis can be derived from the theory that sees political conservatism as motivated cognition (Jost et al., 2003) and from Wilson’s (1973) dynamic theory of conservatism. Our evidence supports this hypothesis. Conservatism correlates negatively with measures of cognitive ability and educational achievement at both individual- and country levels of analysis. We cannot make any statements about the causality, however.

Empirical support for the hypothesized relationship is contingent on the acceptance of structural evidence that defines

⁴ Countries can be replaced by political units within a country such as states within the US and similar analyses can be carried out. Kanazawa (2006) and McDaniel (2006a,b) show that estimated states’ IQ correlate moderately with the economic performance of the states. In this context it is interesting that political conservatism assessed as a percentage of people within the states who voted for G. W. Bush in 2004 has low negative correlation (–.14) with the wealth of states.

⁵ I am grateful to H. Rindermann for his help in carrying out regression analyses using IQ and Conservatism scores for the countries included in the present study.

⁶ It is worth noting that the correlation between wealth (i.e., GDP) and estimated countries’ IQ (.65) is close to the correlations between these variables that have been reported in the literature (e.g., .63 reported by Rindermann, 2008a,b). This can be interpreted as evidence that our selection of countries listed in Table 4 is not biased.

conservatism in terms of measures of Personality, Social Attitudes, Values, and Social Norms. The Conservative syndrome describes a person who attaches particular importance to the respect of tradition, humility, devoutness and moderation as well as to obedience, self-discipline and politeness, social order, family, and national security and has a sense of belonging to and a pride in a group with which he or she identifies. A Conservative person also subscribes to conventional religious beliefs and accepts the mystical, including paranormal, experiences. The same person is likely to be less open to intellectual challenges and will be seen as a responsible “good citizen” at work and in the society while expressing rather harsh views toward those outside his or her group. Our data also show that countries differ along similar albeit somewhat broader dimensions of Conservatism. This paragraph’s description of the Conservative syndrome is a narrative listing of psychological processes captured by the scales and items that define Conservatism factor in this and other studies of ours.

Another conceptually related construct of (Anti- or Amoral) Social Attitudes that defines a bipolar factor with Personality correlates with cognitive abilities at the individual, but not at the country level of analysis. The Amoral Social Attitudes factor captures people’s endorsement of toughness in dealing with fellow human beings. This is not a part of the Conservatism syndrome in our studies. Our results also show that Values and Social Norms do not correlate with cognitive ability at the individual level.

The above summary of the findings suggests that although there is a similarity between the individual-level and country-level factor structures, the differences are also quite pronounced, especially if one considers correlations of factor scores with the external country-level variables. It is tempting to conclude that differences are due to the fusion of Values and Social Norms factors into the two broad between-countries factors. It may be argued that this fusion leads to one between-countries factor having high correlations and the other having low correlations with external variables. This will not do. The split is about the same, and therefore both broad factors should be affected in a comparable way. Some of our analyses that are not presented here indicate that the lack of correlation of the Broad Personality/Social Attitudes/Norms factor with cognitive measures at the country level is due to the Personality and Social Attitudes components of this factor. Apart from Conscientiousness, no other personality measure has a significant raw correlation with the cognitive extension variables (e.g., FSI and PISA scores). The same is true for the Toughness and Maliciousness components of the same factor.

We may conclude that, indeed, Conservatism at the individual level and Broad Conservatism at the country level are related to low performance on cognitive ability tests. These tests are used for the assessment of IQ. There is no assumption about the direction of causality in our findings. One is free to speculate, for example, that Conservatism causes low IQ. Alternatively, the two assumptions mentioned in the Introduction are equally plausible. Thus, in accordance with Jost et al. (2003) theory of motivated cognition, less able people cannot see many complexities of the situation and are therefore threatened by a larger number of events in the environment, becoming more conservative in the process. Or, one can postulate a third cause, common to both IQ and Conservatism that may be in operation. At the individual level, this may be

rigidity. At the country level, this may be fundamentalism. At both levels it may be the lack of formal education or, indeed, a common source of covariation between IQ, Conservatism, measures of Failed States Index, wealth, the rule of law, democracy, freedom, and potentially a host of other variables.

Given the existence of significant correlations between measures of cognitive abilities and Conservatism, it is reasonable to ask whether one or the other is a stronger marker of various measures of countries’ success or failure. The data presented in this paper indicate that Broad Conservatism is a stronger marker than IQ of criteria such as the Failed States Index and measures of wealth, the rule of law, democracy, and freedom.

The data at national level are consistent with the assumption that there exists a common dimension, perhaps best understood as *affluence/poverty* dimension that is the source of aggregate-level differences. This latent dimension is defined in terms of GDP and other macroeconomic measures. It is also defined in terms of subjective measures of happiness (see Diener & Oishi, 2004), measures of investment in education at the national and state level, health (McDaniel, 2006a, b), and sociological and political indices such as those that define post-materialist dimensions in studies of Inglehart (see Inglehart and Baker, 2000). Psychological measures of cognitive ability and conservatism are just a part of this conglomerate and we are at the early stages of trying to understand their role within the network of sociological and political variables and influences.

Acknowledgements

The work reported in this paper was carried out while the author was employed by Educational Testing Service (ETS). The opinions expressed in this paper are those of the author, not of ETS.

Part of this material is based on research sponsored by the Air Force Research Laboratory, under agreement number FA9550-04-1-0375. The views and conclusions contained herein are those of the author and should not be interpreted as necessarily representing the official policies or endorsements, either expressed or implied, of the Air Force Research Laboratory or the U.S. Government.

I am grateful to Larry Stricker, Walter Emmerich, Nat Kogan, Gerard Saucier and Cathy Wendler and four anonymous reviewers for their comments on several earlier version of this paper.

References

- Bouchard, T. J., Jr., Segal, N. L., Tellegen, A., McGue, M., Keyes, M., & Krueger, R. (2003). Evidence for the construct validity and heritability of the Wilson–Patterson conservatism scale: A reared-apart twins study of social attitudes. *Personality and Individual Differences*, *34*, 959–969.
- Brooks, A. R. (2006). *Who really cares: The surprising truth about compassionate conservatism*. New York: Basic Books.
- Brooks, A. R. (2008). *Gross national happiness: Why happiness matters for America—and how we can get more of it*. New York: Basic Books.
- Deary, I. J., Batty, G. D., & Gale, C. R. (2008). Bright children become enlightened adults. *Psychological Science*, *19*, 1–6.
- Diener, E., & Oishi, S. (2004). Are Scandinavians happier than Asians? Issues in comparing nations on subjective well-being. In F. H. Columbus (Ed.), *Politics and economics of Asia*, Vol. 10. (pp. 1–25). Houppauge, NY: Nova Science.
- Georgas, J., van de Vijver, F., & Bery, J. (2004). The ecocultural framework, ecosocial indices and psychological variables in cross-cultural research. *Journal of Cross-Cultural Psychology*, *35*, 74–96.

- House, R. J., Hanges, P. J., Javidan, M., Dorfman, P. W., & Gupta, V. (2004). *Culture, leadership, and organizations: The GLOBE study of 62 societies*. Thousand Oaks, CA: SAGE Publications.
- Hofstede, G. (2001). *Culture's consequences: Comparing values, behaviors, institutions and organizations across nations*. (2nd Edition). London: Sage.
- Inglehart, R., & Baker, W. E. (2000). Modernization, cultural change and persistence of traditional values. *American Sociological Review*, 65, 19–51.
- Jost, J. T. (2006). The end of the end of ideology. *American Psychologist*, 61, 651–670.
- Jost, J. T., Glaser, J., Kruglanski, A. W., & Sulloway, F. (2003). Political conservatism as motivated social cognition. *Psychological Bulletin*, 129, 339–375.
- Kanazawa, S. (2006). IQ and the wealth of states. *Intelligence*, 34, 593–600.
- LeBreton, J. M., & Tonidandel, S. (2008). Multivariate relative importance: Extending relative weight analysis to multivariate criterion spaces. *Journal of Applied Psychology*, 93, 329–345.
- Lynn, R., Harvey, J., & Nyborg, H. (2007). International Differences in Intelligence Symposium: Intelligence and Religion. Paper presented at the 2007 meeting of the International Society for Intelligence Research.
- Lynn, R., & Vanhanen, T. (2002). *IQ and the wealth of nations*. Westport, CT: Praeger.
- Lynn, R., & Vanhanen, T. (2006). *IQ and global inequality*. Athens: Washington Summit.
- McDaniel, M. A. (2006). Estimating state IQ: Measurement challenges and preliminary correlates. *Intelligence*, 34, 607–619.
- McDaniel, M. A. (2006). State preferences for the ACT versus SAT complicates inferences about SAT-derived state IQ estimates: A comment on Kanazawa (2006). *Intelligence*, 34, 601–606.
- Muthén, B. O. (1994). Multilevel covariance structure analysis. *Sociological Methods and Research*, 22, 376–398.
- Muthén, L. K., & Muthén, B. O. (2005). *Mplus user's guide*. Los Angeles: Muthén & Muthén.
- Napier, J. L., & Jost, J. T. (2008). Why are conservatives happier than liberals? *Psychological Science*, 19, 565–572.
- OECD (2004). *Learning for tomorrow's world: First results from PISA 2003*. Paris: OECD.
- Rindermann, H. (2007). The g-factor of international cognitive ability comparisons: The homogeneity of results in PISA, TIMSS, PIRLS and IQ-Tests across nations. *European Journal of Personality*, 21, 667–706.
- Rindermann, H. (2008). Relevance of education and intelligence at the national level for the economic welfare of people. *Intelligence*, 36, 127–142.
- Rindermann, H. (2008). Relevance of education and intelligence for the political development of nations: Democracy, rule of law and political liberty. *Intelligence*, 36, 306–322.
- Robinson, W. S. (1950). Ecological correlations and the behavior of individuals. *American Sociological Review*, 15, 351–357.
- Saucier, G. (2000). Isms and the structure of social attitudes. *Journal of Personality and Social Psychology*, 78, 366–385.
- Saucier, G. (2005). *A brief measure of the four factors in the Survey of Dictionary-Based Isms (SDI)*. Unpublished manuscript.
- Saucier, G., & Goldberg, L. R. (2002). Assessing the Big Five: Applications of 10 psychometric criteria to the development of marker scales. In B. de Raad, & M. Perugini (Eds.), *Big Five Assessment* (pp. 29–58). Goettingen, Germany: Hogrefe & Huber.
- Schwartz, S. H., & Bardi, A. (2001). Value hierarchies across cultures: Taking a similarities perspective. *Journal of Cross Cultural Psychology*, 32, 268–290.
- Stankov, L. (2005). 'g' factor: Issues of design and interpretation. In O. Wilhelm, & R. Engle (Eds.), *Understanding and measuring intelligence*. Sage Publications.
- Stankov, L. (2007). The structure among measures of personality, social attitudes, values, and social norms. *Journal of Individual Differences*, 28, 240–251.
- Stankov, L. (Under review). Psychological aspects of culture.
- Stankov, L., & Knežević, G. (2005). Amoral social attitudes and value orientations among Serbs and Australians. *Australian Journal of Psychology*, 57, 115–129.
- Stankov, L., & Lee, J. (2008). Culture: Ways of thinking and believing. In G. J. Boyle, G. Matthews, & D. Saklofske (Eds.), *The Handbook of Personality Theory and Testing* (pp. 560–575). Sage Publications.
- van Hemert, D. A., van de Vijver, F. J. R., Poortinga, Y. H., & Georgas, J. (2002). Structural and functional equivalence of the Eysenck Personality Questionnaire within and between countries. *Personality and Individual Differences*, 33, 1229–1249.
- Veenhoven, R. (2007). *World Database of Happiness*. Rotterdam: Erasmus University. Retrieved March 8. <http://worlddatabaseofhappiness.eur.nl>.
- Wilson, G. D. (1973). A dynamic theory of conservatism. In G. D. Wilson (Ed.), *The psychology of conservatism*. (pp. 257–265). London: Academic Press.