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# **Do more knowledgeable adolescents have more rationally based civic attitudes? Analysis of 38 countries<sup>1</sup>**

(Draft. Forthcoming with minor revisions in *Educational Psychology*)

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This study argues that more knowledgeable adolescents have more rationally founded civic attitudes, based upon findings on data from the 2009 International Civic and Citizenship Education Study.

## **I. Rational attitudes and their links to knowledge**

Actions and beliefs are commonly understood to be rationally founded when based on logical reasoning and empirical knowledge. One type of rational action that is often referred to is action designed to make efficient use of means in order to achieve desired ends. Examples are Max Weber's concept of 'means-ends rational' action, contemporary Rational Choice Theory, and models of action assumed in much economic analysis (Boudon & Bourricaud, 1986, p. 285). But Weber also points to another rational type: 'value-rational action' based on abstractions, e.g., normative principles, ultimate values (Weber, 1947, pp. 115-118; Kalberg, 1980). Examples are human rights, the Ten Commandments, and Kant's dictum that one's action should follow maxims that one would wish also to govern the action of all others. Weber's types are deliberately simplified ideal types for use as analytic tools. They also include 'traditional action' and 'affective action'.

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<sup>1</sup> The analysis originates in inductions from country indicators prepared by the author for OECD's (2011, 2012) *Education at a Glance*. The author is grateful to Lars Nerdrum and Koji Miyamoto for commissioning these indicators, to two anonymous reviewers for comments on a draft, and to John Craig for suggestions on style and coherence.

Parsons (1964, pp. 640-641) has documented that Weber included not only externally observable acts but also attitudes (my definition: relatively stable evaluative orientations) under his concept of action (*Handeln*). Knowledge is obviously important in 'means-ends rational' action. But knowledge will also inform 'value-rational' judgements about a social object because a judgement will not only depend on values but also on experience-based perception of the concerned social object. For example, trust in government institutions will depend both on the values by which institutions are judged and on their perceived performance. Assuming that honesty is a widely shared value for judging government institutions, knowledge about corruptibility will matter for value-rational trust in such institutions. It will be argued that support for human rights and the intention to vote in public elections can be interpreted as value-rational expressions. It has previously been argued in psychology and political sociology that education promotes value-rational judgements by developing the capacity to reason in terms of abstractions.

### **Findings and interpretations in political sociology**

In political sociology, Lipset (1960, pp.102-104) and subsequently others (e.g., Wolfinger & Rosenstone, 1980) have interpreted a positive association between tolerance and level of education to indicate that education enhances people's capacity to judge complex political issues in terms of abstract values and principles. Similarly, explaining correlations between formal education and a wider range of attitudes in US survey data, Hyman et al. (1979, p. 31) argued that education equips people to distinguish between principles (rights, morality) and context-specific conventions (e.g., manners).

Knowledge and motivation are important in Cognitive Engagement Theory (a derivative of Rational Choice Theory) about civic participation in liberal democracies. According to Pattie, Seyd & Whiteley (2004, pp. 138-140), education helps people to acquire and process large

amounts of information by placing it in a context that includes norms and principles of democracy. Cognitively mobilized citizens will also consider performance when assessing political institutions and they will tend to reject governmental institutions whose performance fails to match principles of democracy and good governance.

### **Findings and interpretations in psychology**

Inkeles and Smith (1974) developed for comparative purposes a scale measuring socio-psychological attributes of individual modernity (the OM-scale). Studies using that scale in different countries have generally found that modern schooling is positively associated with respect for the universalistic rights of others, active search for information about the larger world, readiness to form views about that world, and with readiness to act in a pro-active manner in the public domain (Fägerlind & Saha, 1989).

Other research has investigated the cognitive foundations of moral judgements. In keeping with Kantian philosophy, Piaget (1965 [1932]) saw moral development as the acquisition of capacity to reason about moral dilemmas in terms of principles rather than one's particularistic relationship to others. More recently, Kohlberg and his followers have shown findings in support of the view that giving precedence to principles ('post-conventional reasoning') is the last stage in moral development, though the initial idea of sharply distinct maturational stages has been abandoned in the light of research findings (Reed, 1997; Rest, Narvaez, Bebeau, & Thoma, 1999). It also seems that basing moral reasoning *exclusively* on universalistic principles would unjustifiably deny the legitimacy of preferential regard for one's 'kith and kin' in certain situations. According to Pinker (2002, 2011) some special regard for one's kin and ethnic group in 'reciprocally altruistic' relationships could even be innate in humans.

Kohlberg-inspired comparative research has shown that capacity for 'post-conventional' judgements is positively associated with educational attainment (Rest et al., 1999, pp. 127-128). Conversely, in political research on adults, strongly ethno-centric attitudes tend to be negatively correlated with educational attainment. Hooghe (2003) therefore notes that control for educational level is necessary when other correlates of ethnocentrism are examined.

A common inference has been that formal education promotes more principled judgements and attitudes. However, correlation does not suffice to demonstrate causation. Capacity for reasoning is one possible underlying factor both for educational achievement/attainment and for attitudes based on generalized normative abstractions. Measured intelligence (which itself will partly be based on learning) has been shown to have attitudinal correlates akin to those of educational attainment (Pinker, 2011, pp. 662-663).

The knowledge that is measured in civic knowledge tests or expressed in civic education curricula in democratic countries should be subsumable under types of education likely to affect civic attitudes. The knowledge data to be used in this study are Civic Knowledge test scores. Research is very sparse on the comparative strength of the association which specifically *civic* knowledge has with civic attitudes, as compared to the association which educational achievement or attainment more generally have with such attitudes.

## **II. Data and measures**

This study uses data from the 2009 IEA International Civic and Citizenship Education Study (ICCS). More than 140,000 8<sup>th</sup> grade students and 5,300 schools in 38 countries participated. In each country, two-stage random cluster sampling was used. Schools were selected with a probability proportional to enrolment. At each school an intact classroom group was sampled randomly from the targeted grade. The national samples were large: N>2900 in 37 of the countries (Schulz, Ainley, Fraillon, Kerr & Losito, 2010, p. 263). Sampling quality and item

translations were tightly controlled by the international project team. The complete list of the 38 countries will be shown as part of findings presented later in the text. All of them, except Liechtenstein are included in Figure 1.

The ICCS Civic Knowledge achievement test will be used in the present study. In ICCS, the “Rasch model” was used to derive test scores from 79 test items. The scale is described in Appendix 1.1 and in Schulz, Ainley & Fraillon (2011).

The ICCS attitude scales to be used are described in Appendix 1.2 along with scale items and response options. Rasch Partial Credit Modeling was used. Further technical details are in Schulz et al. (2011).

Of particular interest will be the scale entitled Trust in Civic Institutions. The students were asked: “How much do you trust each of the following institutions?” The institutions referred to in scale components were: the national government, the local government (one’s own), courts of justice, the police, political parties, and the national legislative assembly (Appendix 1.2.1). This scale construction closely resembles what was used in the 1999 IEA comparative study of civic education achievement (CivEd) (Schulz & Sibberns, Eds., 2004, pp. 103-105). The previous scale was named Trust in Government-related Institutions. It used the items referring to the same institutions but employed a different format for response options.

Other ICCS-scales in the present study measure support for gender equality, for equal rights for ethnic groups, and expected adult electoral participation. Appendix 1.2.2-1.2.4 show question wordings, components and response options.

These country-level indicators from other data sources will be used: Transparency International’s Corruption Perception Index (CPI), The World Bank Institute’s Government Effectiveness scale, and UNDP’s Human Development Index (HDI) (Appendix 2). The first

two scales are based on ratings in surveys or by expert panels. The HDI scale is based on country statistics regarding health, education and income.

Special software (The IEA-IDB Analyzer) was employed to produce case-weights and correct standard errors for country-level parameters in countries meeting the sampling standards (all except the Netherlands and Hong Kong), as well as 'plausible values' on the Civic Knowledge test.

### **III. “Trust in Civic Institutions” and the country contexts**

In political sociology a distinction is made between 'generalized trust' (in most people or in strangers) and trust in institutions of governance. Putnam (2000, p. 137) observes: “One could easily trust one’s neighbour and distrust city hall and *vice versa*”. Assuming some awareness among adolescents of the actual corruptibility and effectiveness of their country’s institutions of governance, one could expect that the level of corruptibility and effectiveness of such institutions in a country will influence the average level of trust in government institutions among adolescents. In ICCS such trust is called Trust in Civic Institutions.

Hypothesis 1. The level of Trust in Civic Institutions will be lower in countries where government institutions are more corrupt and less effective.

With regard to the corruption aspect, the hypothesis was supported by Torney-Purta, Barber and Klandl Richardson (2004, p. 390) using data on 14-year-olds from the 1999 CivEd study. Among 28 countries the average country score on “Trust in Government-related Institutions” correlated 0.57 with Transparency International’s 2001 CPI (higher scores indicate *less* corruption). Average trust also correlated 0.56 with UNDP’s Human Development Index (HDI). Is there renewed support for positive correlations in ICCS 2009 which includes more countries?

### **Average 'Trust in Civic Institutions' by indicators of governance and human development**

Figure 1 plots country averages on Trust in Civic Institutions in the ICCS data by country score on Transparency International's Corruption Perception Index (Appendix 2.1).

Triangular shapes denote countries which also were in CivEd 1999 data. Squares denote 'newcomer-countries'.

INSERT FIGURE 1 ABOUT HERE

The regression line in Figure 1 hardly shows any slope. As to be expected, the fit of countries around that line is then negligible ( $r = 0.1$ ). Thus, analysis of 2009 data fails to replicate Torney-Purta et al.'s (2004) findings on the 1999 CivEd-data. Among those 23 ICCS countries which also participated in CivEd, there is in fact a positive correlation:  $r = 0.5$  (regression line not shown), close to the 0.6 found by Torney-Purta et al. for all CivEd-countries. But, when the 'newcomers' to ICCS 2009 also are included, there is no linear association between average 'trust' and corruption level. Thus, the noted contrast between CivEd and ICCS could be due to differences in the samples of countries rather than to change over time in the same countries. Similar analysis was done with other international indicators. Among the 38 ICCS countries, the correlation of the Trust in Civic Institutions scale was 0.07 with the World Bank's Government Effectiveness indicator. With UNDP's Human Development Index it was even negative: -0.13.

Assuming that levels of trust should reflect the relative actual trustworthiness or effectiveness of governments, and that the country indicators prepared by Transparency International, the World Bank Institute and UNDP are valid, these negative findings raise questions about the concurrent validity of the mean country scores.



Great care that was taken in ICCS to ensure comparability of sampling procedures and accurate translation of items. The Trust in Civic Institutions scale was also carefully constructed and showed consistently high reliability across and within ICCS countries ( $\text{Alpha} \geq .8$ ), and confirmatory factor analysis showed a common underlying latent dimension (Schulz et al. 2011, pp. 184-186). Similarly good scaling statistics were also obtained for the scale 'Trust in Government-related Institutions' in CivED 1999 (Schulz & Sibberns, Eds., 2004, pp. 104-105). What, then, could be the nature of the validity problem with the ICCS scale?

### **Problems in comparing country averages on self-reported attitudes**

Good internal consistency of scale items and results from factor analysis in support of a underlying latent dimension do not preclude the possibility of country-specific additive biases in the expression of trust in civic institutions. Milner (2010, p. 179) has warned that averages on scales of political attitudes will generally have poor validity across diverse cultures because culture conditions responses, even when questions are carefully translated. The larger literature on such problems was reviewed by Turmo and Lie (2007). What could generate such possible country-specific biases due to effects of response sets in the present data?

One might suspect that curricula and school-based rituals in some countries instil patriotism and deference to government, leading to a higher level of expressed trust than what would match the country's relative position on the international indicators referred to. This explanation seems unlikely given that the problem of anomalous findings on country-averages on attitudes is not confined to measures of trust in government. In PISA 2003-data anomalous findings were noted by Turmo and Lie (2007) for other self-reported attitudes.

They concluded that there are differences in response style, especially on questions involving agreement or disagreement, among the 41 countries in PISA 2003 data.

Could it be that the problem of such biases would be greater for adolescents surveyed as members of their school, than for adults surveyed as individual citizens? Or could it be that in a context of achievement testing in which students were expected to find the correct answers, there is a normative spill-over of finding desirable answers onto attitude questions? In the previous IEA studies and in PISA, the findings showed a ranking of countries by level of proficiency on the achievement test, and a country's rank often attracts national publicity. That might create a tendency to answer so as to give a good impression of one's school and one's country on the attitude questions. This may not be a likely explanation for the findings in Figure 1 because anomalous country averages in attitude questions are not confined to international achievement studies.

Political sociology contains a substantial body of research in different countries on 'generalized trust' and 'trust in government' as expressed by adults surveyed as individuals. A recent example is the volume edited by Zmerli and Hooghe (Eds., 2011). In that volume, Uslaner (2011, p. 155) analyses large-scale comparative data from the "Life in Transition Survey" (N=1000 in each country) of adults in countries undergoing political and economic transition, in most cases after communist rule. Finding anomalously high levels of trust in government and public service institutions in 10 of these 28 countries, he decided to exclude these 'outliers' (most of them in central Asia) from his analysis of pooled international data.

It is difficult to see a plausible explanation for questionable country-averages on self-reported attitudes that would be common to ICCS, PISA and surveys of adults. A conjecture might be that respondents in countries with strong tradition of deference to authority or strong norms of giving a good impression to outsiders of one's group or collectivity, look for normatively

correct answers. If so, the greater the cultural and institutional diversity of the countries sampled, the greater the risk would be of lack of comparability of country-averages on self-reported attitude questions.

The reason for the anomalous findings in Figure 1 must remain an open question. Since international achievement testing that also collects data on self-reported attitudes is a large-scale and growing activity, there is a need for further research on the comparability of country attitude-averages. Meanwhile, the findings in Figure 1 support Turmo and Lie's (2007) note of caution concerning the comparability of national averages on self-reported attitude items across culturally and institutionally diverse countries.

Turmo and Lie (2007) conclude that within-country *relationships* that involve such self-reported attitudes can nonetheless be compared across countries. That is the next type of comparisons to be undertaken in this study which will examine patterns in correlations between knowledge and attitudes within countries. Such comparisons are not incompatible with the caution about country-averages because it can be shown that the linear within-country correlation between any two variables will not be affected by any postulated fixed country-specific additive bias in individual-level responses on either (or both) of the variables.

#### **Variation among countries in correlation between Trust in Civic Institutions, and Civic Knowledge**

There is great variation among countries in the direction and magnitude of the correlation between Civic Knowledge and Trust in Civic Institutions. Figure 2 arrays countries by the direction and magnitude of these correlations.

(INSERT FIGURE 2 ABOUT HERE)

Twelve countries show no significant correlation. Given the large samples, it is unsurprising that quite weak correlations can differ significantly from zero at  $p(t) < 0.05$ . Eight are weakly positive. Such non-existent or weakly positive correlations would fit ideals of broadly based democracy in which trust in the institutions by which one is governed (and the right to take part in politics) should not depend on the person's expert knowledge about government.

Weak correlations (or possibly negative correlations) also would fit Liberal arguments that knowledgeable citizens, regardless of their expertise, should be wary of too much trust in government (Hardin, 1999). But under more 'statist' concepts of democracy that attach importance to well-developed and universally accessible public services, one could expect better civic knowledge to lead to stronger trust in government. According to Rothstein and Stolle (2003), better public services in societies would also over time generate higher levels of 'generalized trust' a society. One notes that the Nordic welfare states are clustered towards the 'top' of the ranking by correlations. At the other end of the list of countries, eighteen correlations are negative, some strongly so. Does this variation in correlations reflect countries' scores on international indicators?

#### **The predictive power of country indicators for the link between knowledge and trust**

An example of Weberian 'value-rational' type of action that is promoted by knowledge, would be educational knowledge enabling people better to judge government-related institutions in terms of fair and effective democratic governance. Two widely acclaimed principles are incorruptibility and effectiveness. Starting from assumptions of 'means-ends rational' actors, Cognitive Engagement theory similarly implies that better educated persons

will be better informed about the actual performance of government institutions and attach importance to government effectiveness (Pattie et al., 2004, pp. 138-140).

The correlation between knowledge and trust in government should accordingly be contingent on the government's actual trustworthiness and on its effectiveness. Torney-Purta et al. (2004, p. 396) have previously shown that this type of correlation can be negative. Among a sub-sample of 6 countries selected for in-depth study from the 28 countries in the 1999 CivEd study, they found in Colombia that students with higher test scores on civic knowledge were less trustful of 'government-related institutions'. As already shown in Figure 2 such a negative correlation is found in 12 of the 38 ICCS countries. Do such negative correlations indicate that more knowledgeable students are more realistic in their judgement of Civic Institutions?

The foregoing discussion supports these hypotheses:

Hypothesis 2.1: The less corruption there is in a country, the more positive (or the less negative) the correlation between 'knowledge' and 'trust' is likely to be.

Similarly, if knowledge better equips youth to assess the actual effectiveness of government institutions, it would follow that:

Hypothesis 2.2: The more effective the government is, the more positive (or the less negative) the correlation between 'knowledge' and 'trust' is likely to be.

In keeping with arguments about the importance of government-provided public services for generating trust (Rothstein & Stolle, 2003), and assuming that more knowledgeable youth also will be better able than others to judge basic conditions of health, education and income in their country, the following is implied:

Hypothesis 2.3: The higher the country's score on UNDP's Human Development Index, the more positive (or the less negative) the correlation between 'knowledge' and 'trust' is likely to be.

Using international indicators on corruption, government effectiveness and living conditions in countries, the ICCS scale 'Trust in Civic Institutions' and the Civic Knowledge achievement test can be used to test these hypothesis. The results are in Figures 3-5. The three hypotheses (2.1-2.3) are all supported: The lower the score on these indicators, the more negative (or less positive) the correlations between knowledge and trust tend to be. These three relationships are all strong, as indicated by  $r = 0.8$  for goodness of fit to the regression slopes among countries in both Figure 3 and Figure 4, and  $r = .7$  in Figure 5.

(INSERT FIGURE 3 ABOUT HERE)

(INSERT FIGURE 4 ABOUT HERE)

(INSERT FIGURE 5 ABOUT HERE)

Other government indicators produced by the World Bank Institute were also explored. A similarly high correlation ( $r=0.8$ ) was obtained for the fit to the linear trend across these 38 countries when the 'rule of law' index was used as a predictor of the association between 'knowledge' and 'trust' (not shown here).

The components of these country indicators have not been fully publicly documented, and the CPI and the World Bank Institute's government indicators are not suitable for certain purposes of comparison (UNDP, 2007; Arndt & Oman, 2006). The CPI is a measure of country's relative position compared to other countries in a given year and thus not suitable for tracing improvement or deterioration in absolute terms compared its previous condition.

The World Bank Institute has itself warned against making inferences from small differences in index scores between countries or over time for any given country (Kaufman et al., 2010, p. 21). It therefore reports scores with standard errors. However, since the findings in Figures 3-4 so quite strongly fit the hypotheses regarding the pattern of correlations across countries, the findings lend support to validity of these international indicators for the use that here is made of them. A moderately strong relationship was found with UNDP's Human Development Index ( $r=0.7$  in Figure 5). Thus, when the basic income and provision of social services are better in a country, more knowledgeable adolescents tend to have more trust in the institutions by they are governed. The hint of a weaker linear trend in the scatterplot of Figure 5 than in Figures 3 and 4 could suggest that more knowledgeable adolescents are also better able than others to distinguish between conditions of life in their country on the one hand, and what it is reasonable to blame or praise their government for.

#### **IV. Civic attitudes indicating support for human rights**

If knowledge makes adolescents more attached to universalistic rights in their civic attitudes, certain attitude-correlates of Civic Knowledge could be expected to be uniformly positive across countries. Two widely acclaimed rights are equal rights for ethnic groups and equal gender rights.

Hypothesis 3:

Within-country correlations will be positive between scores on the Civic Knowledge test and support for equal gender rights.

Hypothesis 4.

Within-country correlations will be positive between scores on the Civic Knowledge test and support for equal rights for all ethnic groups.

Tentatively, it is also expected that:

#### Hypothesis 5.

Within-country correlations will be positive between scores on the Civic Knowledge test and the expectation of taking part in public elections when old enough to do so.

A large body of studies have shown a positive association between the level of education attained by adults and, on the other hand, recognition of equal human rights, voting, and their more active civic participation. An apparent universality of robustly positive relationships has been noted between formal education and measures of tolerance by Verba et al. (1995, p. 420) and by Nie, Junn, and Stehlik-Barry (1996). Thus, more educated adults tend to recognize the civil rights of people they may strongly disapprove of or disagree with.

More educated persons tend to be more active citizens. A particularly strong positive ‘effect’ of higher education on democratic participation is sometimes noted. For example, using large-scale Irish data, Healy (2005, p.177-185) found that higher education strongly predicts “volunteering, community engagement, civic participation and voting”. It is also possible that such associations are partly attributable to knowledge and mind-sets characterizing those aiming for higher education while they are still in secondary school (Lauglo & Øia, 2006; Lauglo, 2011).

Even anti-democratic education can enable people to reason in support of democracy. Lipset (1960) analysed survey data on adults in early post-war western Germany. Controlling for occupational status, he found that the level of formal education was strongly correlated with support for a system of pluralist democratic politics, suggesting that higher levels of education, even when attained under Nazi rule, may have made people more receptive to democracy in the aftermath of World War II.



In established democracies, the intention to vote may express a ‘value-rational’ sense of civic duty, e.g., that one should, in keeping with Kant's categorical imperative, act according to maxims that should apply to all citizens. Voting can also be means-ends rational if the voter expects positive recognition from others for voting and shame or embarrassment for not voting. It is difficult to other reasons for means-ends rationality in voting since one’s single vote is unlikely to determine the electoral outcome.

Hypothesis 5 is nonetheless tentative because the ICCS-data cover an unusually wide range of countries, including some with a weakly established democracy. Knowledgeable adolescents may in such countries see elections as an opportunity to institutionalize democratic government more firmly. But, in countries with poorly institutionalized competitive politics, it is also possible that they perceive elections as unfairly staged legitimization exercises for corrupt governments.

Table 1 shows findings on Hypotheses 3, 4 and 5. All correlations are positive and statistically significant at  $p(t) < 0.0005$ . The tentative hypothesis 5 is also clearly confirmed: More knowledgeable adolescents tend to have a stronger expectation of voting in public elections when old enough to do so—across the full range of ICCS countries, and in spite of the variation among these countries in political institutions and culture. More knowledgeable students also tend to be more supportive of equal rights for men and women, and of equal rights for all ethnic groups in their country, in keeping with the expectation that more knowledgeable youth are more value-rational in their civic attitudes.

(INSERT TABLE 1 ABOUT HERE)

The correlations with knowledge scores are of moderate to strong magnitude regarding ‘Gender Equality’ (in nearly all countries, slightly stronger for girls than for boys). They are

generally of moderate magnitude for ‘Expected Electoral Participation’ and of low to moderate magnitude for ‘Equal Rights for All Ethnic Groups’.

## **V. Consideration of alternative explanations**

### **Overlapping domains of cognitive test and attitude measures?**

Could the correlations with Civic Knowledge in Table 1 simply reflect the content-specificity of the Civic Knowledge test? As explained by Schulz et al. (2010) and Schulz et al. (2011) the test was designed to construct an internationally valid civic knowledge measure. About  $\frac{3}{4}$  of the items mainly test the students' capacity to reason about civic issues rather than testing factual knowledge. One might suspect that views on electoral participation, equal rights, and identification of corrupt governance, inhere in items testing reasoning capacity. For reasons of their possible reuse, the 79 questions in the test are, with few exceptions, not in the public domain. There are, however, some indications that the correlations with ‘knowledge’ also reflect associations with educational achievement generally, rather than just ‘civic’ reasoning and factual knowledge. If so, the case for attributing the positive correlations in Table 1 to overlapping contents between attitudes and the knowledge test, would be weakened.

Students were asked about their educational ambition. Unpublished explorations by the author on the ICCS-data showed that in every country, students expecting to attain university-level education stood out from others by higher mean scores on all three attitude scales in Table 1. Since such ambition is likely to be strongly predicted by grades/marks received, it might serve as a proxy for high educational achievement across the student's school record. But it is not an ideal proxy since it can be expected also to depend strongly on socio-economic background, net of educational achievement. In Norway, this has been demonstrated in Lauglo (2011) on other data.

A better measure of overall school achievement would be the student's actual record of marks received from their school. Such data are available in ICCS as additional national ICCS information in Norway where information was collected from students about their school performance in an 'additional' ICCS sample of 9<sup>th</sup> graders (N > 2800) using the same schools as the national ICCS-sample of 8<sup>th</sup> graders. These data contain marks from their most recent report card in Mathematics, Social studies, Norwegian, and English (graded on a 1-6 scale). Each of these marks correlated positively with the three attitude scales used in Table 1. The average mark across these subjects correlated 0.5 with the ICCS Civic Knowledge scale. It also correlated 0.3 with Expected Electoral Participation, 0.2 with Gender Equality and 0.2 with Equal rights for all ethnic groups.

Thus, the probes that were possible on ICCS data regarding 'school achievement in general' support the view that the pattern of consistently positive correlations in Table 1 is unlikely to be fully explained by overlapping domains of the Civic Knowledge test and the attitudes measures. In addition, the research literature reviewed similarly indicated that educational attainment in general, not just specifically 'civic' knowledge, is positively associated with the attitudes in Table 1.

### **Reflecting international curriculum trends?**

Support for human rights and readiness for active citizenship may be internationally common elements in civic education curricula. This would not be an alternative to the argument that civic knowledge leads to more rational attitudes, but the 'positive' empirical link may then simply be a direct result of what is explicitly taught in school.

Bromley, Meyer and Ramirez (2011) examined the contents in civic education textbooks in a range of countries and noted a trend towards an emphasis on human rights over and above national citizenship. Another recent study exemplifies such a pattern in one country, The

Republic of Korea: “national citizenship themes remain core elements but ...their emphases have weakened, while global citizenship themes have dramatically increased, especially in the 1990s and 2000s” (Moon & Koo 2011, 574).

It would nevertheless be unlikely that common contents in civic education *as a separate school subject* would explain the positive correlations in all countries in Table 1. Finland was the highest scoring country on the Civic Knowledge test. Yet, Finnish eighth-graders had not yet been exposed to any separate 'civic education subject' when they were tested.

Norwegian findings also would be inconsistent with the explanation that scores on Civic Knowledge are any more attributable to learning in civic education than in other subjects. In Norway, the ICCS Civic Knowledge test scores were marginally better predicted by the students' mark in Mathematics than in Social Studies (Mikkelsen et al., 2011, chapter 9).

One possible interpretation is that the Civic Knowledge test measures reasoning skills about school subjects in general.

#### **Needed control for socio-economic family background?**

Other factors are likely to influence 'knowledge' and 'attitudes'. In particular, the socio-economic status (SES) of the student's family can be assumed to influence educational achievement. It could also affect civic attitudes, net of its influence on such achievement. But the justification for using multivariate analysis to control for such 'other factors' depends on the assumed direction of causality among the independent variables. On the assumption that SES influences knowledge and that knowledge influences attitudes, there would be no need to control for SES in order to examine effects of knowledge on attitudes.

## VI. Concluding remarks

The findings raise doubt about the validity of country-averages on the Trust in Civic Institutions scale in the ICCS study. Since doubtful validity of this scale (and possibly, other attitude self-reports) have far-reaching consequences for comparative research involving culturally and institutionally diverse countries, further research on this contentious issue is desirable.

Notwithstanding the doubtful validity of the country-averages, the findings in Figures 3-5 lend support to the validity for comparative purposes of within-country *relationships* that involve such civic attitudes. More knowledgeable students are less trustful than other students, of governmental institutions in countries with more corruption and less government effectiveness. Table 1 shows that more knowledgeable adolescents are also more supportive of equal rights regardless of gender and ethnicity, and more likely than others to expect to take part in public elections when old enough to do so. The patterns in the present findings fit earlier findings in Piaget- and Kohlberg-inspired moral psychology about 'post-conventional moral reasoning' (Rest et al., 1999; Reed, 1997), and arguments by Lipset (1960), Hyman and Wright (1979), and Pattie et al. (2004) in political sociology, about educational attainment promoting capacity to judge in terms of abstract norms and values rather than in terms of context-specific conventions or particularistic personal attachments. Such attitudes may be described as 'rational' in terms of Weber's (1947, pp. 115-118) classification of action.

Pinker (2011, pp. 689-692) points to the spread of education, of science, of literacy and mass-media based communication, and of cosmopolitan support for human rights as interrelated explanations (the "Escalator of Reason") for world-wide trends of declining violence over

recent centuries. The present findings agree with such renewed 'Enlightenment-optimism' about the civic consequences of knowledge and education.

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## Appendix 1. ICCS scales

### 1.1 Civic Knowledge

The Civic Knowledge scale is based on 79 questions typically presented as units in which some stimulus was followed by items relating to that stimulus. Seventy-three items were multiple-choice; and 6 were ‘open-ended’. The proportion of items across four previously prepared content domains were: “civic society and systems”: 40 %; “civic principles”: 30 %; “civic participation”: 20 %; and “civic identities”: 10 %. The proportions across two cognitive domains were: “knowing”: 25 %; and “reasoning and analyzing”: 75 %.

The ICCS core team used the “Rasch model” to derive the Civic Knowledge scale which was set to have an international mean of 500 and a standard deviation of 100 for the equally weighted national samples (Schulz, Ainley, Fraillon, Kerr and Losito, 2011). After writing descriptors for each item in the assessment instrument the core team ordered the descriptors according to item difficulty to produce an item map. Analysis of that map and of the student proficiency scale produced proficiency levels with a width of 84 scale points and level boundaries at 395, 479 and 563 points. The proficiency level descriptors used in the international ICCS reporting are a synthesis of the descriptors of items within each level.

### 1.2 Attitude scales

The attitude scales in the present study had been developed by the ICCS international team for comparative work. They are composites based on answers to several items. For each national dataset the reliability of the scale was assessed. Items in the original pool which failed to scale adequately in any one country were excluded.

The Rasch Partial Credit Model was used for scaling. The resulting weighted likelihood estimates were transformed into a metric with a mean of 50 and a standard deviation of 10 for those equally weighted national samples that satisfied guidelines for sample participation.

For each scale, Shulz et al. (2011, 160-193) give details on procedures, country-specific internal reliability and results from confirmatory factor analysis.

### **1.2.1 Trust in Civic Institutions**

“How much do you trust each of the following institutions?” Items:

- The national government of <country of test>
- The <local government> of your town or city
- Courts of justice
- The police
- Political parties
- <national parliament>

Response options: “completely”, “quite a lot”, “a little”, “not at all”. International Alpha = 0.84. Within-country Alpha ranged from 0.76 to 0.89. Angle-bracketed terms were adapted to country of test. Higher scores = more trust.

### **1.2.2 Equal Rights for All Ethnic Groups**

“There are different views on the rights and responsibilities of different <ethnic/racial groups> in society. How much do you agree or disagree with the following statements?”

Items:

- All <ethnic/racial> groups should have an equal chance to get a good education in <country of test>
- All <ethnic/racial> groups should have an equal chance to get good jobs in <country of test>
- Schools should teach students to respect members of all <ethnic/racial groups>

- Members of all <ethnic/racial groups> should be encouraged to run in elections for political office
- Members of all <ethnic /racial groups> should have the same rights and responsibilities

Response options: “strongly agree”, “agree”, “disagree” and “strongly disagree”.

International Alpha = 0.83. Angle-bracketed terms were adapted to country of test.

Higher scores = stronger agreement.

### **1.2.3 Expected Adult Electoral Participation**

“Listed below are different ways adults can take an active part in political life. When you are an adult, what do you think you will do?” Items:

- Vote in local elections
- Vote in national elections
- Get information about candidates before voting in an election

Response options: “I will certainly do this”, “I will probably do this”, “I will probably not do this” and “I will certainly not do this”. International Alpha: 0.82. Higher scores = stronger expectation.

### **1.2.4 Gender Equality**

“There are different views about the roles of women and men in society. How much do you agree or disagree with the following statements?” Items:

- Men and women should have equal opportunities to take part in government
- Men and women should have the same rights in every way
- Men and women should get equal pay when they are doing the same jobs
- Women should stay out of politics

- When there are not many jobs available, men should have more right to a job than women
- Men are better qualified to be political leaders than women are

Response options: “strongly agree”, “agree”, “disagree” and “strongly disagree”.

International Alpha = .79. Higher scores = supporting gender equality.

## Appendix 2. Country Indicators

### 2.1 Corruption Perception Index (CPI)

Transparency International is an international network with a secretariat in Berlin and 90+ local chapters. It brings together players from government, civil society, business and the media to promote transparency in elections, public administration, procurement and business. Activities include producing and updating the CPI index which in 2010 ranked 178 countries by their perceived levels of corruption. Its main purpose is measuring corruption in international business transactions, e.g., when obtaining export permits or in connection with undocumented extra payments to access public utilities. According to UNDP (2007, 32-33), the index is a composite drawing on 12 polls and surveys from 9 independent institutions gathering opinions of business people and country analysts. The data sources ask qualitative questions to determine the perceived level of corruption. Some use assessors external to the country rated. The CPI runs from 0 to 10 (with 10 being “highly clean” and 0 being “highly corrupt”). It measures countries’ *relative positions in given year*. Scores for 2009 were obtained from:

[http://www.transparency.org/policy\\_research/surveys\\_indices/cpi/2009/cpi\\_2009\\_table](http://www.transparency.org/policy_research/surveys_indices/cpi/2009/cpi_2009_table)

### 2.2 Government Effectiveness

The World Bank Institute’s governance indicators are internationally widely used (UNDP 2007, 57). The Government Effectiveness Scale is designed to capture *“perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government’s commitment to such policies”*. It is set to have an international mean of 0 and a standard deviation of 1. In practice the index ranges from 2.5 to +2.5. Higher

values indicate higher quality of governance. The index includes estimated standard errors.

Documentation of types of sources: <http://info.worldbank.org/governance/wgi/resources.htm>.

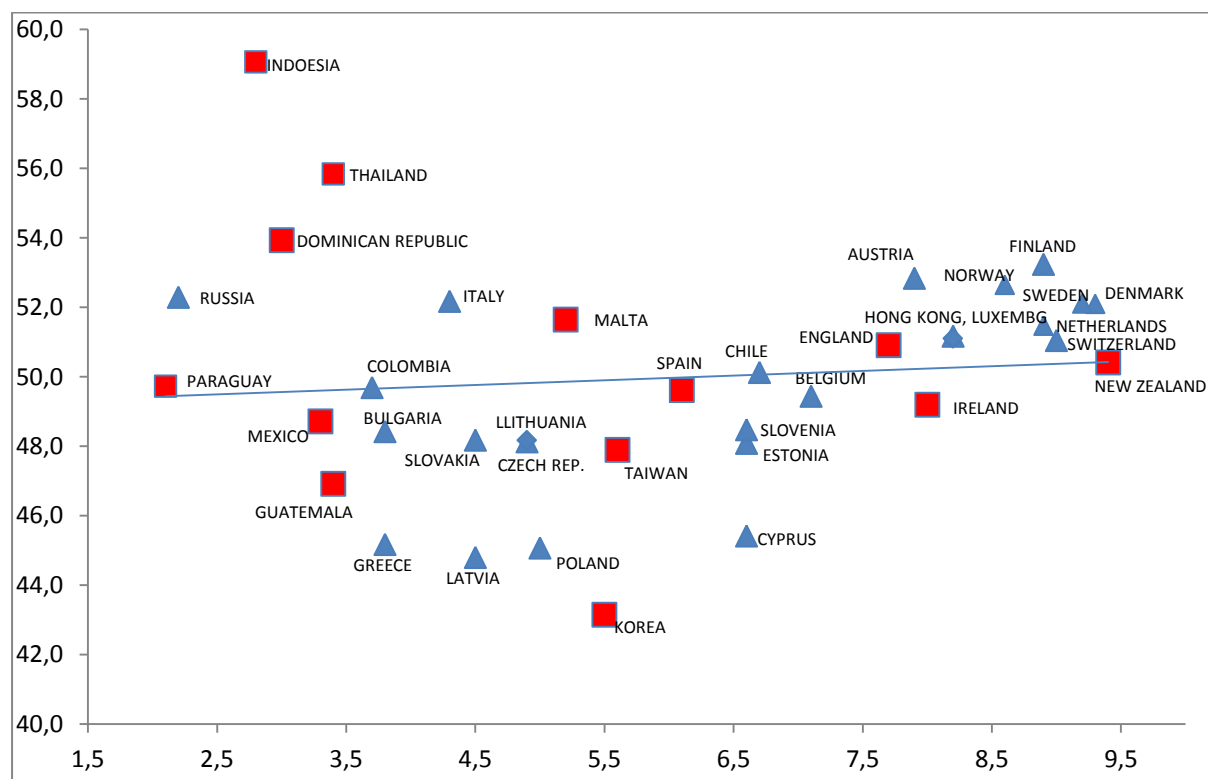
The architects of the World Bank's governance indicators warn against using the index for inferences about change over time in countries, or about differences among countries with relatively similar scores (Kaufman et al. 2010, 21). The disaggregated data used to produce the indicators are not all publicly available (Arndt & Oman 2006, 29-30).

### **2.3 The Human Development Index (HDI)**

The United Nations Development Program's HDI is a composite of statistics on health, education and living standards. It indicates the extent to which basic quality of life is achieved in a country. The HDI sets a minimum and a maximum for each of its three dimensions (called goalposts), and shows where each country's position expressed as values between 0 and 1. (<http://hdr.undp.org/en/statistics/hdi/>).

## Tables and figures

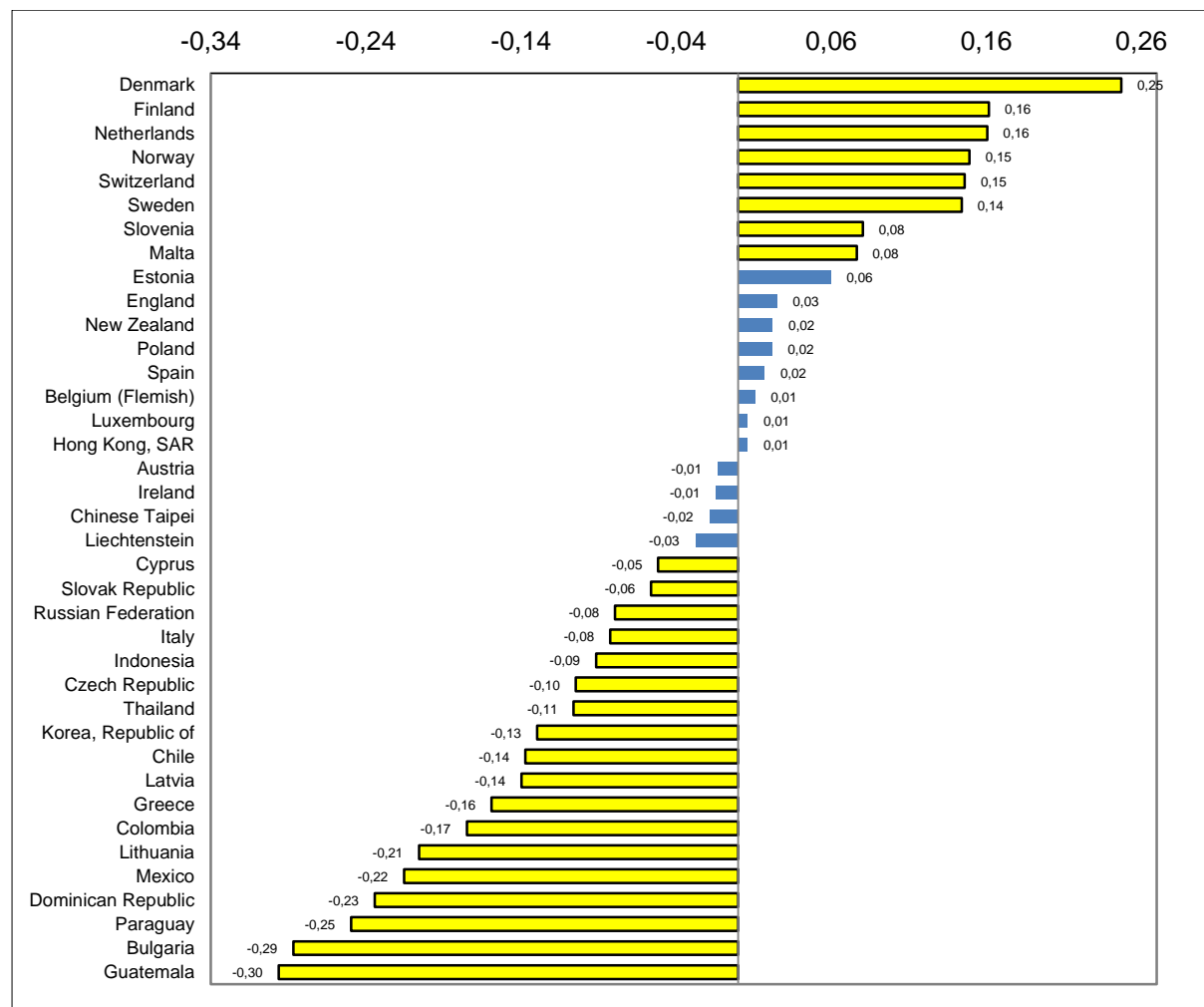
**Figure 1. Average score on Trust in Civic Institutions (vertical axis) by Transparency International's Corruption Perception Index (horizontal axis). Higher CPI = less corruption**



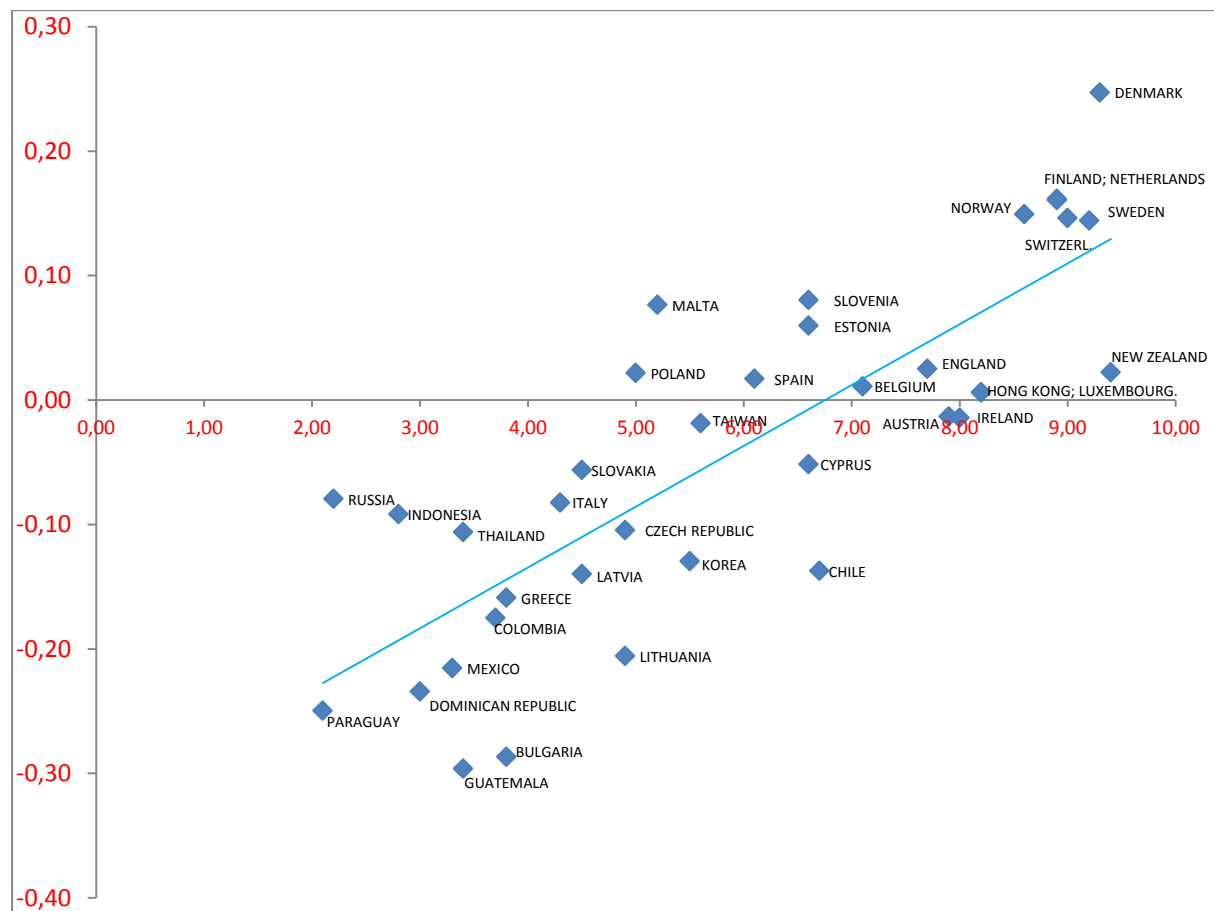
$r = 0.1$  for fit to the regression line. Liechtenstein (an ICCS country) is not included due to lacking CPI rating.



**Figure 2. Countries listed by magnitude and direction of correlation between Civic Knowledge and Trust in Civic Institutions. Dark bars =  $r$  not significantly different from zero**

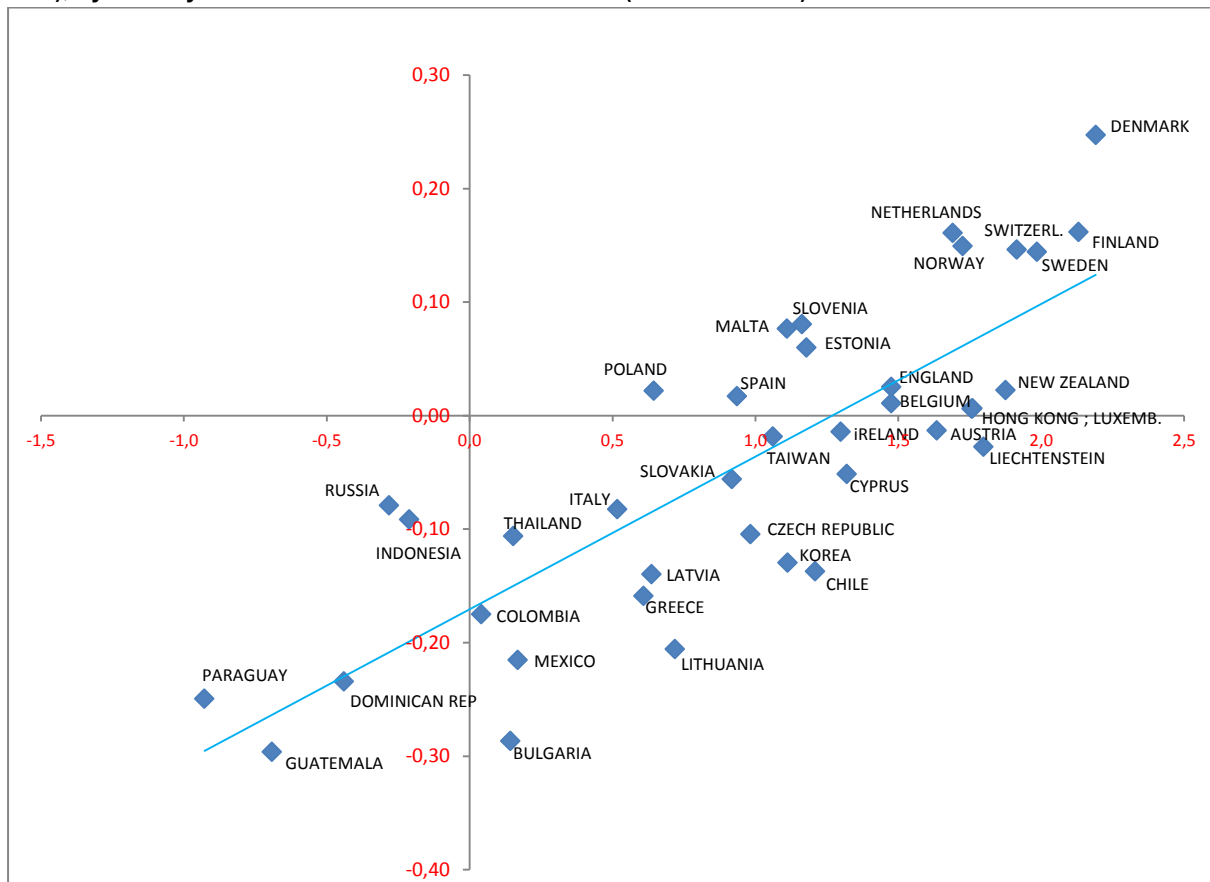


**Figure 3. Within-country correlations between Civic Knowledge and Trust in Civic Institutions (vertical axis) by country score on Corruption Perception Index (horizontal axis). Higher CPI = less corruption**



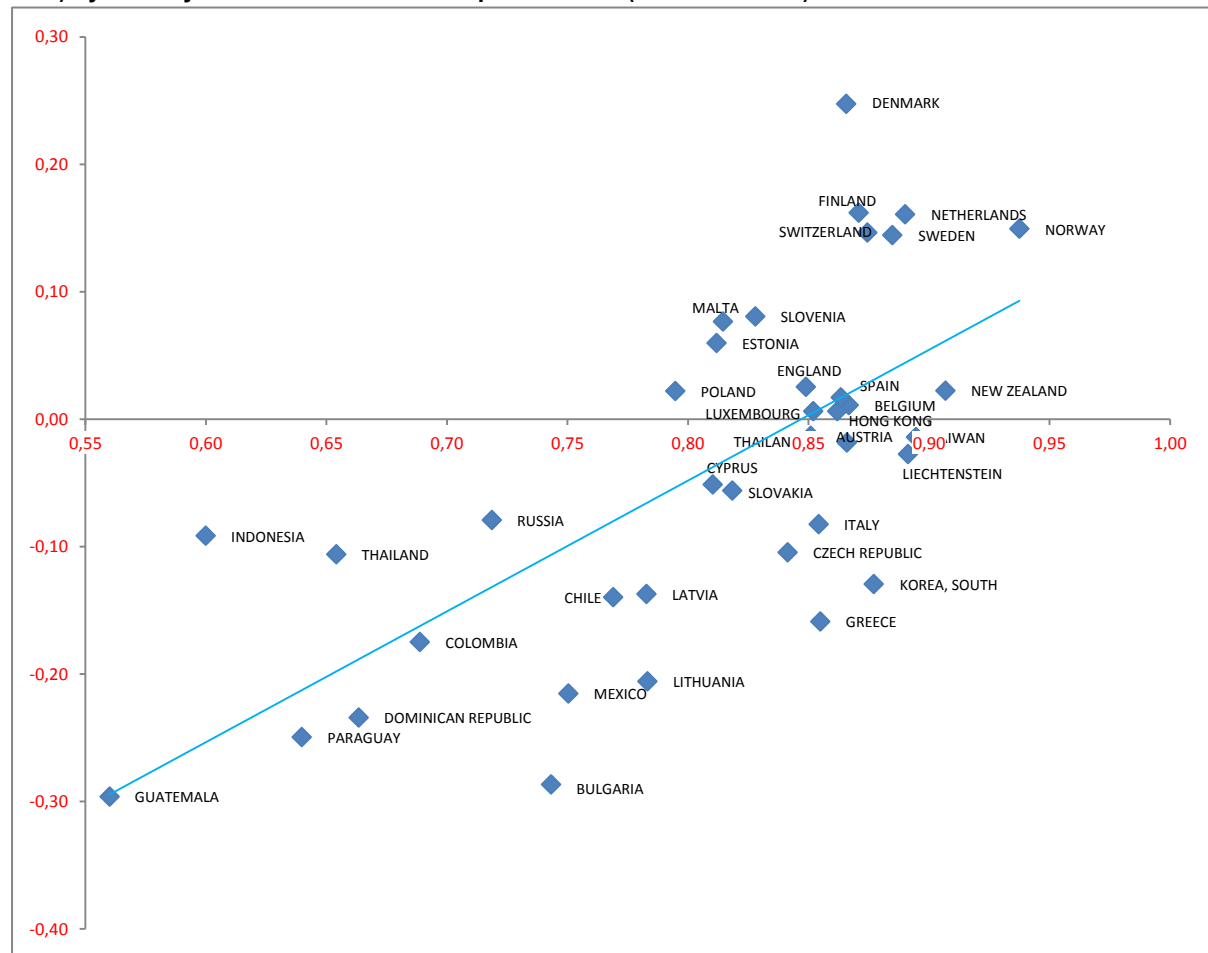
$r = 0.8$  for fit to the linear regression line. Liechtenstein is not included due to lacking CPI rating.

**Figure 4. Within-country correlations between Trust in Civic Institutions and Civic Knowledge (vertical axis), by country score on Government Effectiveness (horizontal axis)**



$r = 0.8$  for fit to regression line

**Figure 5. Within-country correlations between Civic Knowledge and Trust in Civic Institutions (vertical axis) by country score on Human Development Index (horizontal axis)**



$r = 0.7$  for fit to regression line

**Table 1. Within-country correlations of Civic Knowledge with scales measuring Expected Electoral Participation, Support for Equal Rights for All Ethnic Groups, and Support for Gender Equality**

Countries (alphabetically)	Correlations of Civic Knowledge with attitude scales				
	Expected Electoral Participation	Support for Equal Rights for All Ethnic Groups	Support for Gender Equality		
			All 8th graders	Males	Females
Austria	0.36	0.33	0.42	0.38	0.46
Belgium (Flemish part )	0.29	0.16	0.35	0.30	0.42
Bulgaria	0.23	0.09	0.48	0.38	0.54
Chile	0.15	0.31	0.49	0.45	0.53
Taiwan	0.35	0.29	0.46	0.43	0.45
Colombia	0.23	0.32	0.50	0.49	0.51
Cyprus	0.32	0.30	0.45	0.35	0.45
Czech Republic	0.43	0.22	0.45	0.34	0.54
Denmark	0.42	0.26	0.36	0.35	0.39
Dominican Republic	0.10	0.12	0.47	0.37	0.51
England	0.42	0.36	0.43	0.41	0.43
Estonia	0.33	0.31	0.45	0.37	0.48
Finland	0.34	0.32	0.40	0.37	0.38
Greece	0.31	0.33	0.38	0.29	0.41
Guatemala	0.20	0.31	0.51	0.49	0.54
Hong Kong	0.31	0.25	0.31	0.29	0.30
Indonesia	0.24	0.26	0.37	0.33	0.37
Ireland	0.40	0.30	0.39	0.35	0.44
Italy	0.40	0.23	0.43	0.35	0.50
Korea, Republic of	0.38	0.27	0.33	0.29	0.33
Latvia	0.27	0.20	0.46	0.41	0.45
Liechtenstein	0.31	0.22	0.28	0.28	0.31
Lithuania	0.29	0.32	0.52	0.44	0.53
Luxembourg	0.35	0.14	0.45	0.41	0.50
Malta	0.31	0.21	0.49	0.41	0.51
Mexico	0.25	0.36	0.50	0.46	0.51
Netherlands	0.28	0.16	0.24	0.22	0.27
New Zealand	0.40	0.37	0.48	0.47	0.47
Norway	0.45	0.34	0.48	0.47	0.47
Paraguay	0.30	0.24	0.50	0.43	0.52
Poland	0.31	0.32	0.38	0.28	0.41
Russian Federation	0.23	0.19	0.39	0.29	0.45
Slovak Republic	0.33	0.21	0.45	0.37	0.51
Slovenia	0.33	0.29	0.42	0.38	0.40
Spain	0.30	0.26	0.51	0.50	0.50
Sweden	0.40	0.37	0.42	0.43	0.40
Switzerland	0.36	0.31	0.38	0.38	0.40
Taiwan	0.35	0.29	0.46	0.43	0.45
Thailand	0.39	0.28	0.49	0.41	0.48
AVERAGE all countries	<b>0,32</b>	<b>0,27</b>	<b>0,43</b>	<b>0,38</b>	<b>0,45</b>