



IEA COMPASS: BRIEFS IN EDUCATION

INTERNATIONAL GENDER DIFFERENCES IN CIVIC KNOWLEDGE AND ATTITUDES: IMPLICATIONS AND WAYS FORWARD



SUMMARY

This *Compass Brief* examines gender differences in students' civic knowledge and attitudes toward globally important social topics. It uses data from IEA's International Civic and Citizenship Education Study (ICCS) 2022, which assessed the civic knowledge of eighth-grade students across 22 countries. The findings from ICCS 2022 indicate a notable gender gap in civic knowledge in most participating countries, with boys scoring lower on average than girls in all such cases.

Students exhibited strong positive attitudes toward gender equality, although boys were significantly less likely than girls on average to express support for it. The disparity in support for gender equality was larger than for any other indicator. In most countries, and on average internationally, boys were significantly less likely than girls to express positive attitudes about environmental protection and concern about global environmental threats. In the event of national emergencies in democratic systems, boys in half of the participating countries were significantly more likely than girls to accept restrictions, such as prohibiting large gatherings, imposing travel restrictions, or identifying people whose behavior might put others at risk. These gender differences in attitudes present challenges for building more democratic, equitable, and sustainable societies worldwide.

IMPLICATIONS

- ▶ If higher levels of civic knowledge, as well as strong commitments to gender equity and environmental protection are considered positive outcomes across the student population, then reducing the extent of boys' substantial underachievement in these domains would be a constructive way to make progress toward these goals.
- ▶ The large disparity in concern for the environment and environmental protection between boys and girls, on average, is worrisome given the increasingly negative effects of climate change. The results from ICCS 2022 suggest that efforts to improve commitment to environmental protection and gender equity should include a focus on improving boys' environmental awareness and attitudes regarding gender equality and democracy.
- ▶ If schools are partly responsible for imparting civic knowledge, then education specialists and practitioners, policymakers, and societies more generally should be concerned by these results. The finding that boys possess lower civic knowledge on average has implications for the functioning of democracies, as ensuring that all students gain civic knowledge strengthens the democratic system by creating a more informed and engaged citizenry.

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INTRODUCTION

A recent World Bank study found that boys are underachieving academically compared to girls in several respects in many countries, and that the phenomenon may be becoming more prevalent in middle-income countries (Welmond & Gregory, 2021). Using data from TIMSS (*Trends in International Mathematics and Science Study*), PISA (*Programme for International Student Assessment*), and the UNESCO Institute for Statistics, the study indicated that, while female underrepresentation in secondary and tertiary education remains a significant issue in some, particularly low-income countries, more than 100 countries have lower levels of male secondary and tertiary education enrollment and completion. Learning poverty rates—defined as the proportion of children unable to read and understand a simple text at 10 years

of age—are higher for boys than for girls in all regions and almost all countries of the world. Across various grades and subjects, in many countries boys tend to have poorer learning outcomes than girls. The differences are substantial in some countries, particularly in the Middle East and North Africa region, as regularly demonstrated in international assessments of student learning. Awareness of boys' educational underachievement continues to expand and deepen as a research topic and in the general media. An interesting addition to the debate is concern regarding differences in the knowledge of boys and girls (or young men and women) in an increasing range of subjects, from civics to gender equality to the environment.

DATA & ANALYSIS

The analyses presented next are primarily based on the ICCS 2022 international dataset (Afana et al., 2024), which consists of an extensive survey of eighth-grade students' (average age: 14.4 years) civic knowledge in 20 countries that met all sample participation requirements. Analyses were conducted using IEA's IDB Analyzer which facilitates appropriate use of special features of the dataset including weights, replicate weights, and plausible values, which are needed to account for sampling variance, measurement error, and the hierarchical structure of the data (with students clustered within schools) in producing statistical estimates.

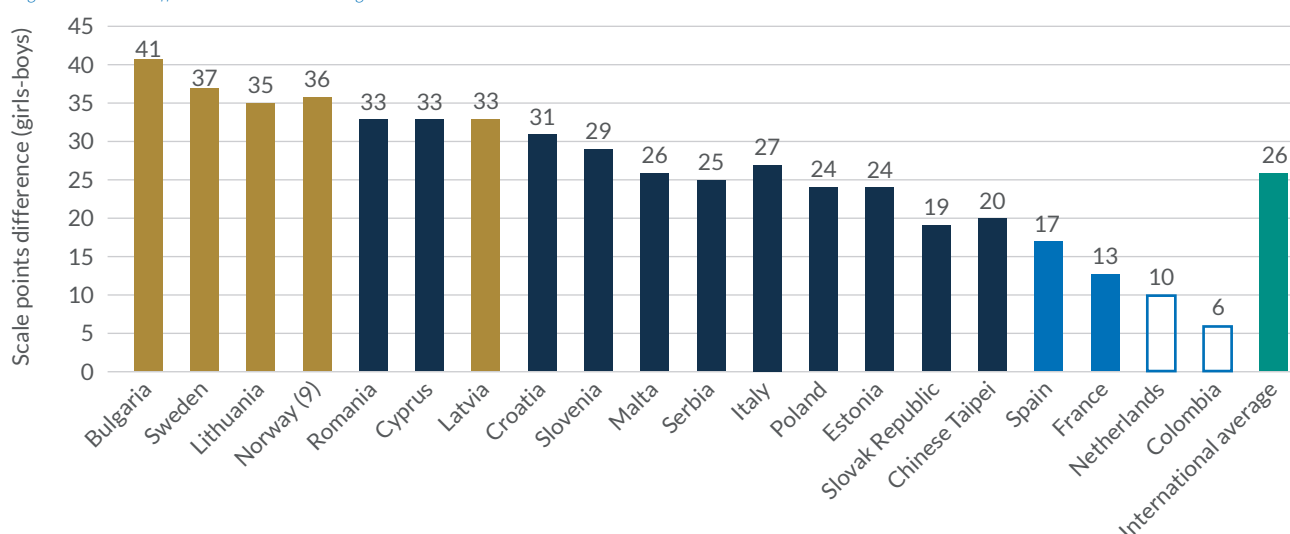
The main variables examined in this study include civic knowledge, attitudes toward gender equality, attitudes toward the environment, attitudes toward democracy, and student gender. Additional details regarding the operationalization of these variables are provided in [Appendix A](#). Additional attitudinal scales (e.g., attitudes toward immigrants) are referenced in relation to the main analysis variables in the discussion. Further details on these and other variables can be found in Schulz et al. (2023), with guidance on dataset structure and use provided by Afana et al. (2024).

GENDER DIFFERENCES IN CIVIC KNOWLEDGE

ICCS 2022 results show a significant gender gap in most countries surveyed, with girls outscoring boys in all cases (*Figure 1*). This finding has remained consistent over the three cycles of ICCS,

implying that the international decline in civic knowledge between 2016 and 2022 (Schulz et al., 2023) was not gender specific.

Figure 1. Gender differences in civic knowledge in ICCS 2022

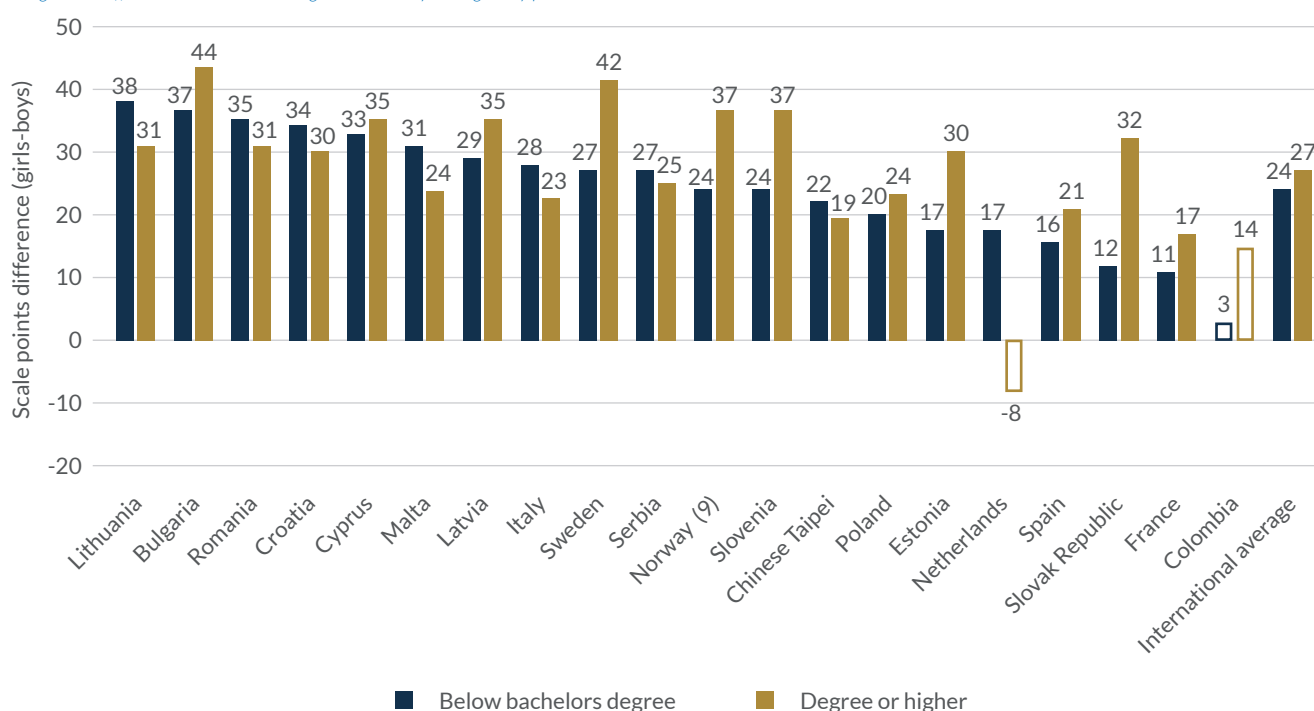


Note: Gender differences in yellow (Bulgaria, Sweden, Lithuania, Norway, Latvia) were significantly above the ICCS average. Gender differences in blue (Spain, France, Netherlands, Colombia) were significantly below the ICCS average. Differences shown in dark blue were not significantly different from the ICCS average. The difference between boys and girls was not significant in countries shown in outline (Netherlands, Colombia).

Socioeconomic background is moderately to strongly associated with achievement in ICCS. On average across countries, the correlation between an index of students' socioeconomic background and civic knowledge was **.39** (95% confidence interval [CI] = **.37 to .40**) for boys and **.42** (95% CI = **.41 to .43**) for girls. This means that students from more advantaged backgrounds generally scored higher in civic knowledge, and the link was a little stronger for girls than for boys.

Among boys and girls whose parents hold similar educational qualifications, girls whose parents' highest qualification was below the degree level scored significantly higher than boys of similar backgrounds in all countries except Colombia (Figure 2). Likewise, in all countries except for Colombia and the Netherlands, girls whose parents' highest qualification was a bachelor's degree or higher scored significantly higher than boys from similar backgrounds.

Figure 2. Differences in civic knowledge between boys and girls by parental education level



Note: All differences are statistically significant except those shown in outline (the Netherlands, Colombia). Scores >0 indicate higher scores among girls compared to boys, within each category of parental education level.

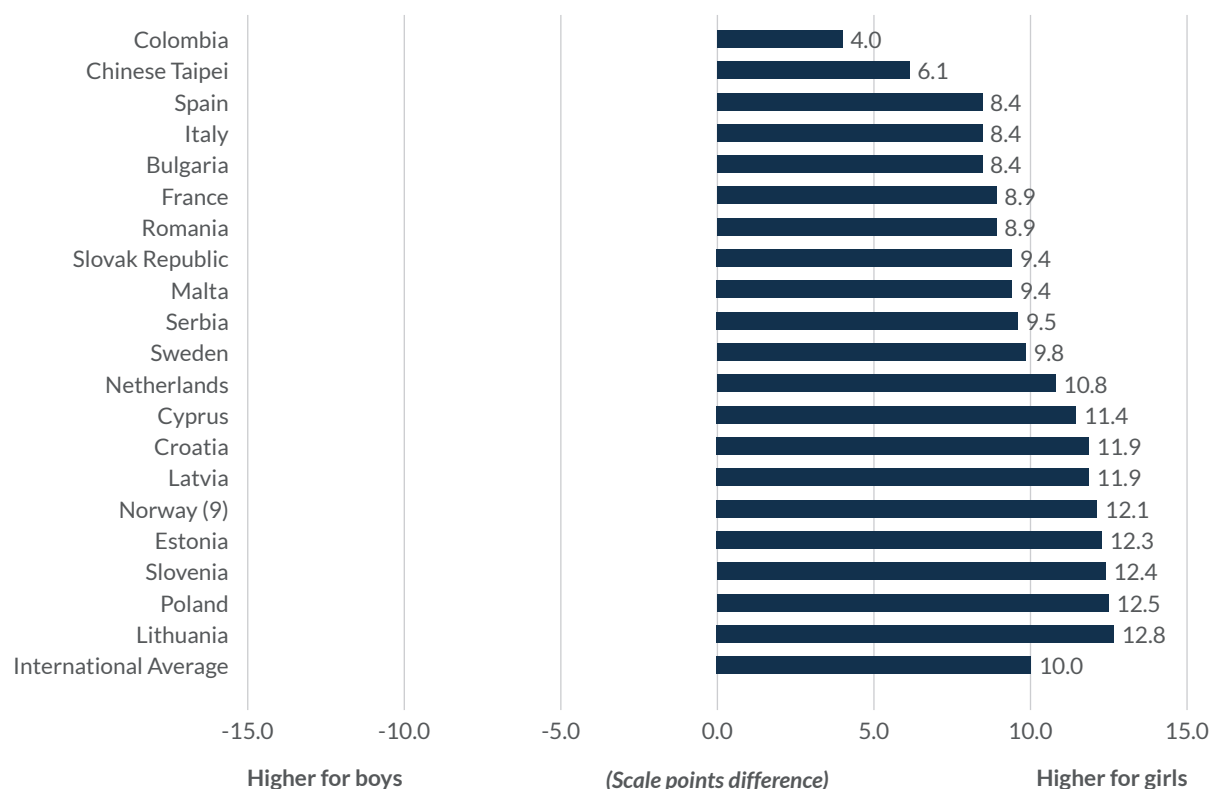
GENDER AND ATTITUDES TOWARD GENDER EQUALITY

Internationally, students held strong positive attitudes toward gender equality. On average there was a substantial difference of ten scale points (one standard deviation) in the endorsement of gender equality, meaning that students with higher levels of civic knowledge expressed more support than their peers with lower knowledge.

On average across countries, girls were significantly more likely than boys to express support for gender equality (Figure 3). The magnitude of the differences between genders on this

measure was substantially larger than for any other indicator. Internationally, girls (**84%**) were much more likely than boys (**59%**) to strongly agree that men and women should have equal opportunities to take part in government, while boys (**10%**) were more likely to disagree or strongly disagree than girls (**2%**). In addition, one-quarter (**25%**) of boys agreed or strongly agreed that women should stay out of politics (compared to **8%** of girls) and about one-third (**32%**) reported that men should have more right to a job than women when jobs are scarce (compared to **12%** of girls).

Figure 3. Gender differences in students' endorsement of gender equality



Note: Statistically significant differences are shown in dark blue.

Internationally, students' support for gender equality positively correlated with their endorsement of equal rights for all ethnic groups ($r_{\text{boys}} = .45$ and $r_{\text{girls}} = .46$), positive attitudes toward immigrants ($r_{\text{boys}} = .34$ and $r_{\text{girls}} = .33$), concern about threats to the global environment ($r_{\text{boys}} = .29$ and $r_{\text{girls}} = .36$), positive attitudes to environmental protection ($r_{\text{boys}} = .27$ and $r_{\text{girls}} = .30$), and beliefs about threats to democracy ($r_{\text{boys}} = .26$ and $r_{\text{girls}} = .33$).

Students who expressed greater support for gender equality reported lower endorsement of expected participation in illegal protest activities ($r_{\text{boys}} = -.26$ and $r_{\text{girls}} = -.22$), attitudes toward the influence of religion in society ($r_{\text{boys}} = -.21$ and $r_{\text{girls}} = -.29$) and expected active political participation ($r_{\text{boys}} = -.12$ and $r_{\text{girls}} = -.13$).

There are notable differences in the patterns of correlations observed for boys and for girls. Comparison of the confidence intervals for these correlations indicate that girls demonstrated

a significantly stronger relationship than boys between support for gender equality and beliefs about threats to democracy (95% $CI_{\text{boys}} = .24$ to $.27$ and $CI_{\text{girls}} = .31$ to $.34$) and concern about threats to the global environment (95% $CI_{\text{boys}} = .28$ to $.30$ and $CI_{\text{girls}} = .34$ to $.37$).

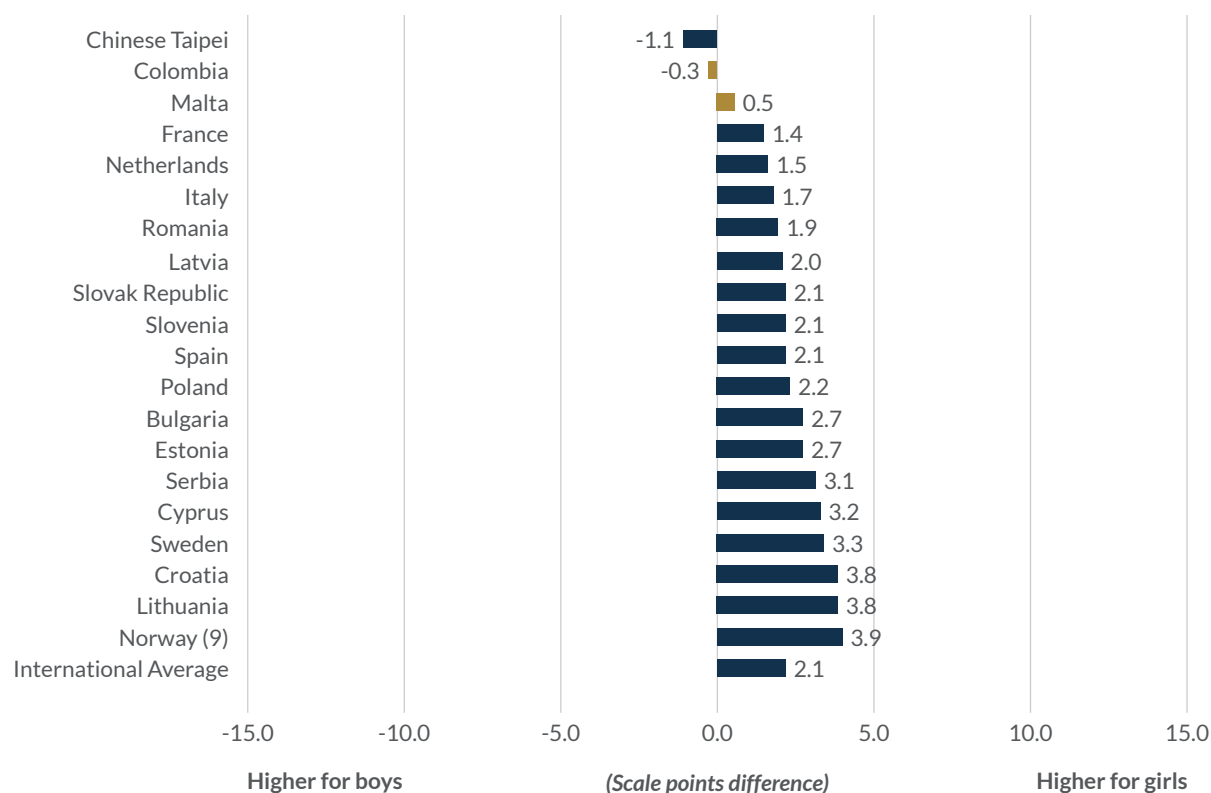
Significant gender differences were also seen in the strength of the negative relationships between support for gender equality and attitudes toward the influence of religion, which were more strongly negative for girls (95% $CI_{\text{boys}} = -.23$ to $-.20$ and $CI_{\text{girls}} = -.31$ to $-.28$) and expected participation in illegal protest activities, which were more strongly negative for boys (95% $CI_{\text{boys}} = -.28$ to $-.25$ and $CI_{\text{girls}} = -.24$ to $-.20$). A large difference can be seen in the extent to which girls' support for gender equality was moderately negatively correlated with their satisfaction with the political system ($r_{\text{girls}} = -.18$; 95% $CI = -.20$ to $-.16$), where no such relationship was seen for boys ($r_{\text{boys}} = -.02$; 95% $CI = -.03$ to $-.00$).

GENDER AND ATTITUDES TOWARD THE ENVIRONMENT

On average, internationally, girls were significantly more likely than boys to express positive attitudes about protection of the environment (Figure 4). In Colombia and Malta, there were no gender differences on this measure. In Chinese Taipei alone, boys were more likely than girls to endorse environmental protection.

Internationally, girls (51%) were more likely than boys (41%) to say that they had learned how to protect the environment at school. Girls (46%) were also more likely than boys (37%) to describe taking part in activities to protect the environment as being very important.

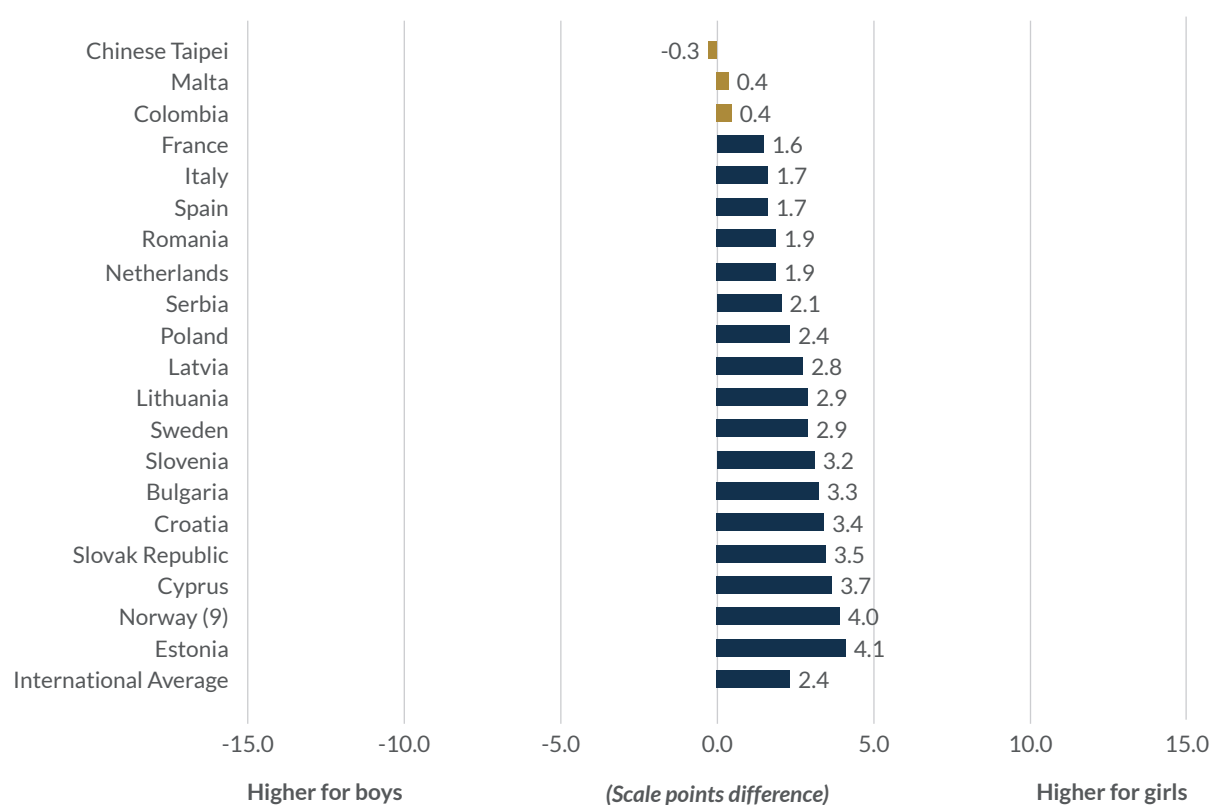
Figure 4. Gender differences in students' positive attitudes toward environmental protection



Note: Statistically significant differences are shown in dark blue; non-significant differences shown in yellow.

Similarly, in most countries and on average internationally, girls were significantly more likely than boys to express concern about threats to the global environment (Figure 5).

Figure 5. Gender differences in students' concern about threats to the global environment



Note: Statistically significant differences are shown in dark blue; non-significant differences shown in yellow.

Eight of the participating countries in ICCS 2022 also participated in another international large-scale assessment at the eighth grade—IEA’s TIMSS 2019. The TIMSS 2019 science assessment included a new measure of environmental awareness for the first time—for example, assessing students’ knowledge of factors that may cause pollution or harm to living organisms. Among the

countries that took part in both assessments—Chinese Taipei, Cyprus, France, Italy, Lithuania, Norway, Romania, and Sweden—the magnitude of gender differences seen in the ICCS 2022 measure of environmental concern and the TIMSS 2019 measure of environmental awareness followed similar patterns, with a moderate positive correlation of .39 (authors’ own calculations).

GENDER AND ATTITUDES TOWARD DEMOCRACY

ICCS data allows for an analysis of gender differences related to trust in civic institutions and endorsement of restrictions in a national emergency.

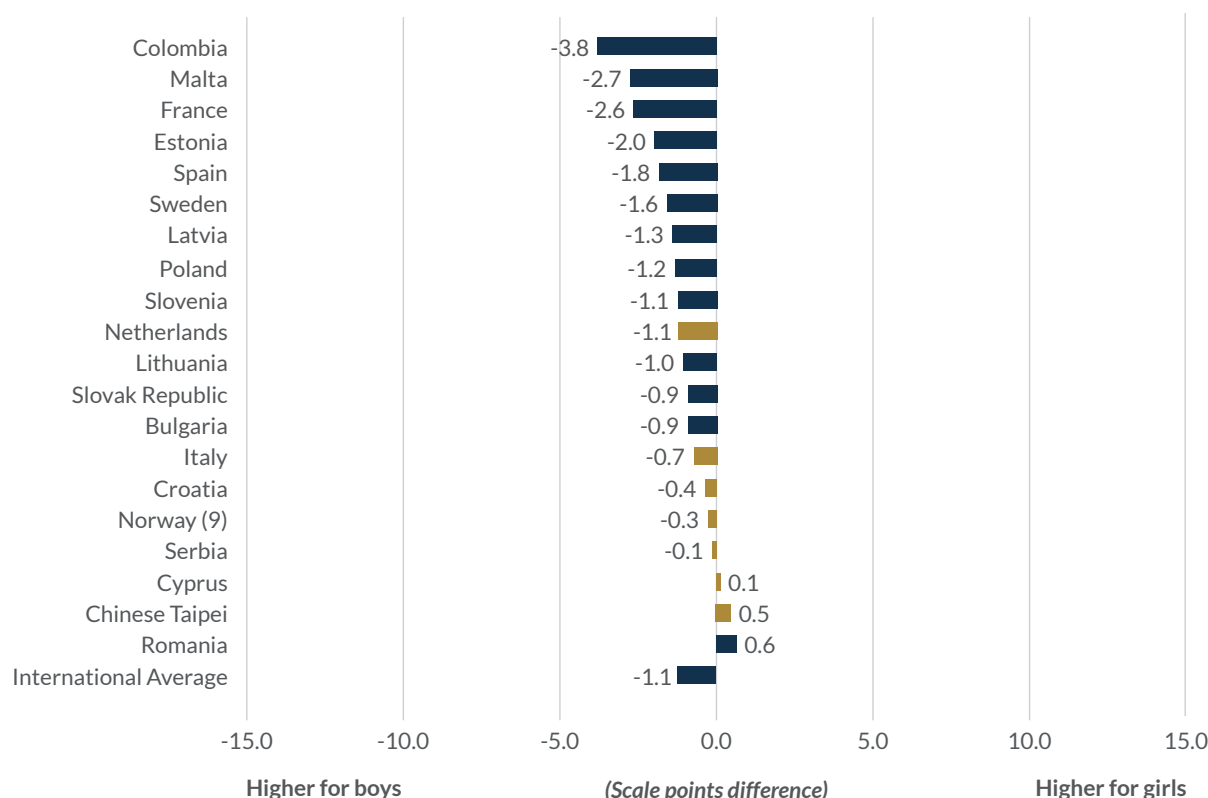
► Trust in civic institutions

In most countries and on average internationally, boys were significantly more likely than girls to express trust in civic institutions (Figure 6). Notably, trust in civic institutions appears to be more predictive of other beliefs and attitudes for boys than for girls. Internationally, boys’ level of trust in civic institutions was more strongly related than girls’ to beliefs about the importance of globally-oriented citizenship activities ($r_{\text{boys}} = .23$ and $r_{\text{girls}} = .11$), endorsing equal rights for all ethnic groups ($r_{\text{boys}} = .22$ and $r_{\text{girls}} = .06$), having positive attitudes to environmental protection ($r_{\text{boys}} = .21$ and $r_{\text{girls}} = .07$), beliefs

about the importance of social movement-related citizenship activities ($r_{\text{boys}} = .19$ and $r_{\text{girls}} = .09$), positive attitudes to immigrants ($r_{\text{boys}} = .19$ and $r_{\text{girls}} = .05$), expected participation in environmental protection activities ($r_{\text{boys}} = .26$ and $r_{\text{girls}} = .14$), concern about threats to the global environment ($r_{\text{boys}} = .11$ and $r_{\text{girls}} = .00$), and expected participation in illegal protest activities ($r_{\text{boys}} = .10$ and $r_{\text{girls}} = .01$).

In addition, boys and girls showed opposite patterns in the relationship between trust in civic institutions and endorsement of gender equality, with trust in institutions being negatively correlated with gender equality beliefs for boys but not for girls ($r_{\text{boys}} = -.08$ and $r_{\text{girls}} = .08$).

Figure 6. Gender differences in students’ trust in civic institutions

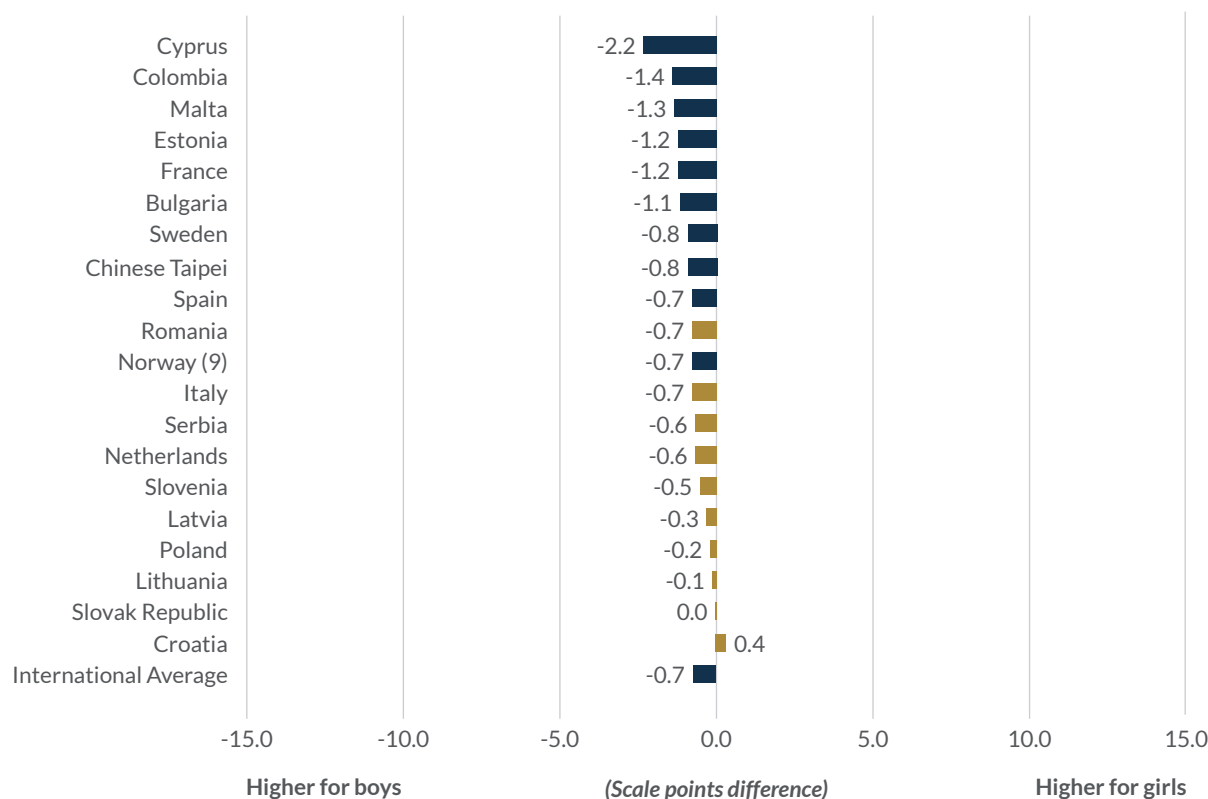


Note: Statistically significant differences are shown in blue; non-significant differences shown in yellow.

► Endorsement of restrictions in a national emergency

In half of the participating countries, boys were significantly more likely than girls to accept restrictions—such as prohibiting large gatherings, imposing travel restrictions, or fining people whose behavior might put others at risk—being imposed in a national emergency (Figure 7). However, the differences were smaller than for many of the other measures reported. In the other countries, there were no significant differences between boys and girls.

Figure 7. Gender differences in students' endorsement of restrictions in a national emergency



Note: Statistically significant differences are shown in dark blue; non-significant differences shown in yellow.

DISCUSSION AND CONCLUSION

ICCS data provides an illuminating view of the level of civic knowledge of students internationally, as well as their positions on selected civic attitudes. There are several gender-related findings that stand out. First, although the gender gap in civic knowledge has not changed over the three cycles of ICCS, it remains a prominent feature, with boys showing a poorer mastery of civic knowledge than girls. This finding dovetails with the results of other research indicating that boys are underachieving educationally in comparison to girls in reading, school completion, and university enrollment (Welmond & Gregory, 2021). Consistent with other findings, the gender gap in civic knowledge appears to be more pronounced among students from lower socioeconomic backgrounds.

► Gender gap and civic knowledge

Do the gender gaps highlighted in this *Compass Brief* matter? They do, for two reasons. If higher levels of civic knowledge and stronger civic attitudes have positive outcomes across the student population, then reducing the extent of boys' underachievement in these domains would be a way to advance toward this overall goal.

Welmond and Gregory (2021) suggest that reducing gender gaps in learning—by increasing the achievement of boys to match that of girls—would have a significant impact on the Human Capital Index of a given country.

In addition, the finding that boys possess lower civic knowledge has implications for the functioning of democracies. Ensuring that all genders gain civic knowledge strengthens the democratic system by creating a more informed and engaged citizenry, including the ability and willingness to participate constructively in the civic sphere. Differences in civic knowledge may also reinforce harmful stereotypes and perpetuate cycles of inequality. The large disparities between boys' and girls' attitudes regarding gender equality shown here are particularly disquieting. Girls appear to have a fuller appreciation for the importance of gender equality for a well-functioning democracy and economy. Considering that there is still a long way to go to achieve gender equality in the world, increasing boys' engagement with this goal could be seen as a particularly important target in its own right.

► Gender gap and environmental protection

The gender gap in attitudes toward environmental issues and environmental protection is of equal concern considering the ongoing—and foreseeable—negative effects of climate change. Sabarwal et al. (2024) note the increasing impacts that climate change is already having on education worldwide. At least 81 countries were forced to temporarily close schools because of extreme climate events between January 2022 and June 2024, leading to disrupted learning for an estimated 404 million students. Other climate-related factors, such as rising temperatures, are also impeding student learning to an increasing degree. With challenges such as these likely to grow in the coming years, a wide swath of educational outcomes and educational participation are likely to be affected, highlighting the urgency of fostering informed perspectives and constructive attitudes toward protection of the environment. ICCS 2022 data suggests that such efforts should include a focus on boys' environmental awareness and attitudes.

The contrasting findings regarding democratic principles are particularly noteworthy. It appears that girls trust existing civic institutions less than boys. This is reflected by both the general finding on this question, as well as their greater hesitancy to resort to calls for a national emergency. That fewer girls than boys have confidence in civic institutions may be related to a greater awareness among girls that the road to gender equality is a long one and that civic institutions do not always ensure gender equity to the desired extent.

► Taking action

What can be done about the gender gaps in civic knowledge and civic attitudes? They may reflect broader structural inequalities such as disparities in education, access to resources, and (gendered) societal expectations and norms. Socioeconomic status appears to play a role in the level of civic knowledge mastery. Similarly, Welmond and Gregory (2021) found that the gap between boys and girls from a lower socioeconomic background in other educational outcomes were wider than those between students from a higher socioeconomic background. This may point to a need to devote more attention to addressing gender gaps in learning and other outcomes among specific (sub)populations.

Schools play a role in imparting civic knowledge and the gender gaps revealed in the ICCS 2022 results should be concerning for

education specialists, policymakers, and practitioners. The overall decline in civic knowledge since 2016 reported by Schulz et al. (2023) is a wake-up call. If we believe that civic knowledge leads to constructive action and change, the implications of these negative trends for building more democratic, equitable, and sustainable societies are substantial. The degree to which education systems pay specific attention to declines in civic knowledge and to gender differences—in terms of pedagogical approaches, school environments and structures, and academic objectives—could play an important role in future outcomes.

Focusing on gender equality and the environment as integral parts of civic education may offer some promise. Our analysis of ICCS data suggests that there are strong correlations between attitudes toward gender equity, the environment, and students' level of civic engagement, and opinions on other related subjects such as immigration and threats to democracy.

The extent to which these findings can be generalized to the civic knowledge of the adult population more broadly or to other countries is limited. ICCS mostly includes countries with higher incomes and high scores on the Human Development Index, including higher literacy rates. As Welmond and Gregory (2021) point out, there is some evidence that boys' academic underachievement is more prevalent in high-income countries than low- and middle-income countries. With that in mind, findings from higher-income countries in ICCS may nonetheless be relevant for policymakers in lower- and middle-income countries.

Globally, a substantial gender gap in political participation remains. Despite progress, positions of political power in legislatures, judicial branches, and executives are mostly held by men globally and in ICCS-participating countries (UN Women, 2023; OECD, 2023). Wage differences in favor of men for equal work or qualification remain the norm in almost all countries (IFC, 2025; UN Women, 2024; World Economic Forum, 2023). The representation of women in science, technology, engineering, and mathematics professions or studying these subjects remain significantly lower than for men (World Economic Forum, 2023), which may be related to particularly large gender-related wage differences in these fields (IFC, 2025). Reducing these global gender gaps will take time and sustained effort including (but not limited to) educational settings.

AUTHOR NOTE

The findings, interpretations, and conclusions expressed in this paper are those of the authors.

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APPENDIX A

- ▶ **Civic knowledge:** Eighth-grade students' civic knowledge was assessed via 141 test items spread across four content domains (civic institutions and systems; civic principles; civic participation; and civic roles and identities). Because each student would have seen only a subset of the total pool of items, estimates of civic knowledge are calculated using five plausible values of achievement. Scores are represented on the ICCS international civic knowledge scale, which is set to a mean of 500 and a standard deviation of 100.
- ▶ **Attitudes to gender equality:** Students' responses to six items relating to gender equality were used to calculate a scale set to an international mean of 50 and standard deviation of 10. Example items include *men and women should have the same rights in every way* and *when there are not many jobs available, men should have more right to a job than women*.
- ▶ **Attitudes to the environment:** Students' attitudes to environmental protection were captured via five items (examples: *countries need to work together to preserve the world's natural resources* and *governments should focus more on protecting the environment than on supporting economic growth*) and used to construct a scale. Another scale representing students' perceptions of threats to the global environment was created based on the extent to which four issues—*pollution, water shortages, climate change, and loss of biodiversity*—were seen as threats to the world's future. These scales also had an international mean of 50.
- ▶ **Attitudes to democracy:** Students' level of trust in civic institutions is represented by a scale composed of six items: namely, the degree to which they trust their *national government, parliament/congress, courts of justice, traditional media, political parties, and police*. Another scale, representing students' endorsement of restrictions in a national emergency, was calculated based on their level of agreement that governments should have the right to engage in nine different actions during a national emergency (examples: *impose travel restrictions, oblige people to provide information about their movements, and close shops and businesses*).
- ▶ **Student gender:** Based on the SD_GENDER variable, which categorizes students as boys or girls.

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