CHAPTER 7:

Explaining variation in students' civic knowledge and expected civic engagement

Chapter highlights

ICCS 2016 provides insights into factors associated with civic knowledge.

- Analyses of multilevel factor models showed large differences (overall, within, and between schools) across countries with respect to variation in students' civic knowledge. (Table 7.1)
- The analyses also showed considerable variation across countries with respect to how much specified factors explain this variance.
- Students' characteristics and social background were important predictors of their civic knowledge. (Table 7.2)
- Factors reflecting processes of civic learning showed relatively consistent associations across countries with civic knowledge at the level of individual students, but less consistency at the school level. (Tables 7.3, 7.4)
- The model controlling for student characteristics and social background showed some of the apparent associations between civic learning factors and civic knowledge as no longer significant. Students' perceptions of open classroom climate for discussion as well as their civic engagement at school remained significant predictors, however. (Table 7.5)

ICCS 2016 data analyses identified factors associated with students' expected engagement in civic activities.

- Multiple regression models using student background, experience with civic engagement, disposition toward engagement, and beliefs about citizenship and institutions explained between a quarter and a third of the variation in expected civic participation. (Tables 7.6, 7.9)
- Parental interest and students' interest in civic issues were the strongest student-background predictors of expected civic engagement. Female students were less inclined than male students to expect they would become actively involved politically in the future. (Tables 7.7, 7.10)
- Experience with civic engagement in the community or at school tended to be positively associated with students' expected civic engagement as adults. (Tables 7.7, 7.10)
- Students' civic knowledge and self-efficacy as well as students' beliefs were consistent predictors of expected electoral and active political participation. (Tables 7.8, 7.11)
- While more students with higher levels of civic knowledge were more likely to expect electoral participation, they were less likely to expect more active political involvement. (Tables 7.8, 7.11)
- Students who believed in the importance of civic engagement through established channels were also more likely to expect future civic participation. (Tables 7.8, 7.11)
- In most countries, trust in civic institutions was positively associated with expected electoral and active political participation. (Tables 7.8, 7.11)

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Conceptual background

This chapter presents some results of the multivariate analyses of ICCS 2016 data that we conducted in an effort to explain variation in three commonly investigated outcomes of civic and citizenship education: civic knowledge, expected electoral participation, and expected active political participation. The content of this chapter is primarily concerned with the following research questions:

- RQ 2a: *Are there variations in civic knowledge that are associated with student characteristics and background variables?*
- RQ 2b: *Which contextual factors explain variation in students' civic knowledge?*
- RQ 3: *What is the extent of students' engagement in different spheres of society, and which factors, within or across countries, are related to it?*

The chapter includes not only multilevel analyses of the student-level and school-level factors that potentially explain variation in students' civic knowledge but also (single-level) multiple regression modeling of students' expectations of participating in electoral activities ("expected electoral participation") and in more active political activities ("expected active political participation"). Analyses of between-school variation in civic knowledge revealed considerable variation across schools in most countries that consequently made multilevel modeling of student-level and school-level factors viable. In contrast, between-school variation for indicators of expected participation was considerably more limited, thus making multilevel modeling much less appropriate. We therefore decided to use a single-level multiple regression modeling strategy for these indicators instead.

The analyses presented in this chapter focus on data drawn from the ICCS 2016 student test and questionnaire. Because the non-response rates in ICCS 2016 were higher for the teacher and school principal questionnaires than for the student instruments, we adopted this focus so that we could maximize the number of countries included in this first set of multivariate analyses of the ICCS 2016 data. We expect that other researchers conducting further multivariate analyses of the released ICCS 2016 data will draw out additional indicators from these and other sources, and that they will use the results presented in this chapter as a reference point for those more detailed analyses.

Although our statistical modeling used predictor variables to "explain" variation in dependent variables, our results should not be interpreted as indicating causality. Given the limitations of international large-scale assessments and their cross-sectional designs (Rutkowski & Delandshere, 2016), it is not possible to reach firm conclusions about causal relationships from the findings presented in this chapter. We therefore encourage readers to regard these results as a review of associations between the dependent variables (civic knowledge, expected electoral participation, and expected active political participation) and relevant contextual variables. Our findings may suggest the possibility of causal relationships, but observed significant effects are not necessarily evidence of causality. Within our statistical model, there is a clear distinction between exogenous and endogenous variables; but these, too, do not easily translate into firm conclusions about causality.

Explaining variation in civic knowledge: the history of IEA studies and the background provided by theoretical approaches

Numerous studies have identified associations between a wide range of factors and students' civic knowledge. The first IEA Civic Education Study in 1971 identified (male) gender, socioeconomic background, and encouragement of independent expression of opinion at school as factors positively associated with students' civic knowledge (Torney, Oppenheim, & Farnen, 1975). Chall and Henry (1991) pointed out an association between civic knowledge and level of reading literacy. Their finding received support from analyses of data from the American National Assessment of Educational Progress (NAEP) showing a positive association between students' use of English at home and their level of civic knowledge (Niemi & Junn, 1998).

Indicators of socioeconomic background such as parental education and family income have also been reported as positive correlates of civic knowledge (Lutkus & Weiss, 2007; Niemi & Junn, 1998). Data from CIVED 1999 revealed home literacy and parental education as positive predictors of civic knowledge across countries (Amadeo, Torney-Purta, Lehmann, Husfeldt, & Nikolova, 2002; Torney-Purta, Lehmann, Oswald, & Schulz, 2001). Evidence also exists of context-related influences of socioeconomic background, such as home literacy and the socioeconomic complexion of the school, on civic knowledge (Schulz, 2002; Schulz, Ainley, Fraillon, Kerr, & Losito, 2010).[1]

Using NAEP data from 1988, Niemi and Junn (1998) assumed if students are to acquire civic knowledge, they need to be exposed to relevant information and to have the motivation to learn. As indicators of exposure, the authors used home-environment and school-related factors, such as curriculum, coursework, and recent civic instruction at school. They also identified students' plans to attend college, their participation in mock elections, and their enjoyment of studying civic-related topics as potentially important factors. After controlling for other variables in a multiple regression model, the authors found significant positive associations between two student variables—taking classes or courses featuring civic topics and participating in role-played elections or mock trials—with students' civic knowledge. Both CIVED 1999 and ICCS 2009 confirmed positive associations between home-related factors of civic learning (e.g., discussions about civic issues, access to media information) as well as school factors (e.g., openness of the classroom climate, student participation at school) and civic knowledge (Schulz et al., 2010; Torney-Purta et al., 2001).

The ICCS 2016 assessment framework (Schulz, Ainley, Fraillon, Losito, & Agrusti, 2016) assumes that acquisition of civic knowledge is influenced by contextual factors that function at different levels (e.g., community, school/classroom, home environment) and can be characterized as either antecedents or processes. Antecedents (factors such as test language use at home or socioeconomic background) set some constraints on student learning about civic-related issues and how it takes place. Factors directly related to the learning process (classroom climate for civic learning, student activities) are further important elements of context that potentially influence the development of civic-related knowledge and understanding as well as of civic attitudes and engagement. In accordance with Bronfenbrenner's *ecological systems theory* (1979), which proposes that multiple systems interact with one another and influence young people's cognitive development, the contacts adolescents have with family, school, peers, and the wider community all contribute to the development of their civic knowledge and act as agents of socialization, while young people themselves play an important role in shaping the ways in which these environments affect their development.

Bourdieu's theory of economic, cultural, and social capital (Bourdieu, 1986) provides a further perspective on the influence that multiple interacting factors have on the development of students' civic knowledge. Economic capital, as a resource for human capital (skills, knowledge, and

1 Further articles presenting analyses of factors explaining civic knowledge can be found in an annotated bibliography of secondary analyses of the IEA civic education studies compiled by Knowles and Di Stefano (2015).

qualifications), cultural capital (habits and dispositions), and social capital (societal links to other people) provide important elements shaping the development of adolescents. This perspective not only emphasizes the importance of socioeconomic background but also recognizes the relevance of other forms of resources, including those related to interactions with other people, which Coleman (1988) conceptualizes as social capital. Generated by the relational structure of interactions inside and outside the family, social capital facilitates the success of an individual's actions as well as his or her learning efforts.

Drawing on these perspectives, we selected variables from the following categories as predictors in our model seeking to explain variation in students' civic knowledge:

(a) *Student background and schools' social context:* student characteristics (gender, language use, expectation of completing a university degree, and interest in political or social issues) as well as the socioeconomic backgrounds of individual students and of schools;

(b) *Students' civic learning outside school:* discussion of political and social issues (with peers and parents) as well as obtaining information from media;

(c) *Students' civic learning at school:* students' perceptions of civic learning at school, open classroom climate for discussions, and civic engagement at school;

(d) *School contexts for civic learning*: aggregated scores of variables reflecting students' perceptions of civic learning, open classroom climate, and civic engagement at school.

To explain variation in civic knowledge, we estimated three models for these analyses, each of which included a different sub-set of variables:

- *Model 0:* This model had only the dependent variable and intercepts. We used it to estimate the variance between schools and within schools and thereby provide a baseline for the models that included predictor variables.
- *Model 1:* This model included only variables pertaining to student characteristics, socioeconomic home background, and school context (Category A variables).
- *Model 2:* This model included only those variables pertaining to civic learning outside school and at school. It did not control for student characteristics or for socioeconomic home background and school context variables (Categories B, C, and D variables).
- *Model 3:* This model included all the variables in Models 1 and 2 (Categories A, B, C, and D variables).

Our rationale for this grouping was that it allowed us to analyze, first, through Model 1, the influence of background factors on civic knowledge without having to consider process factors, and then, through Model 2, the associations between process factors related to civic learning at student and school levels without having to control for socioeconomic background. We chose this approach because of the difficulty of disentangling process factors from social context factors (e.g., students from households with higher socioeconomic status being the students more likely to obtain media information or to develop interest in civic issues). Model 3 allowed us to report the net effect of civic learning factors after controlling for personal characteristics and the socioeconomic backgrounds of students and schools.

We used the following individual variables as predictors:

- *Student background and schools' social context (Models 1 and 3):*
  - Students' gender (female = 1, male = 0)
  - Students' use of the test language at home (1 = speaks the test language at home most of the time, 0 = speaks another language at home most of the time)

  - Students' expected level of education (1 = expects a university degree, 0 = other students)
  - Students' interest in political and social issues (1 = quite or very interested in political and social issues, 0 = other students)
  - Students' socioeconomic background (nationally standardized with averages of 0 and standard deviations of 1)
  - Schools' average socioeconomic background (aggregated nationally standardized scores).
- *Civic learning outside school (Models 2 and 3):*
  - Students' discussion of political and social issues (IRT scale, nationally standardized scores with averages of 0 and standard deviations of 1; items and scale are described in more detail in Chapter 4)
  - Students' use of media information (1 = use at least weekly either TV news, newspaper, or the internet to inform themselves about political and social issues, 0 = other students).
- *Civic learning at school (Models 2 and 3):*
  - Students' learning about civic issues at school (IRT scale, nationally standardized scores with averages of 0 and standard deviations of 1; see Chapter 6 for details)
  - Students' perceptions of an open classroom climate for discussion (IRT scale, nationally standardized scores with averages of 0 and standard deviations of 1; see Chapter 6 for details)
  - Students' participation in civic activities at school (IRT scale, nationally standardized scores with averages of 0 and standard deviations of 1; some items included in this scale are described in more detail in Chapter 4).
- *School learning context (Models 2 and 3):*
  - Schools' average student learning about civic issues at school (aggregated nationally standardized scores)
  - Schools' average student perceptions of an open classroom climate for discussion (aggregated nationally standardized scores)
  - Schools' average student participation in civic activities at school (aggregate nationally standardized scores).

Students' socioeconomic background was a composite index derived from highest parental occupation, highest parental educational attainment, and home literacy (measured as the number of books at home). This index, constructed in a similar way to the corresponding ICCS 2009 index (see Schulz & Friedman, 2011), was standardized nationally so that within each participating country the scale had an average of 0 and a standard deviation of 1.

All other questionnaire-based scales were also standardized so that, within each country, scale scores had an average of 0 and a standard deviation of 1. The unstandardized regression coefficients therefore represent a change in the dependent variables (here: civic knowledge test scores, see Chapter 3 for details), with an increase of one national standard deviation in each of the independent variables. Because we took this approach, the coefficients should be interpreted as effect sizes, although there are limitations in terms of their comparability across countries. Scale scores aggregated at the school level are in the same metric as the original scales, and coefficients reflect expected changes, with a national (student-level) standard deviation of 1. Categorical variables were coded with values of 1 and 0 so that the regression coefficients would reflect the net effect of the difference between categories.

Given the hierarchical nature of the data as well as our observation of substantial proportions of variance between schools, we carried out multivariate multilevel regression analyses (for an explanation of this type of analysis, see, for example, Raudenbush & Bryk, 2002). We estimated, for each national sample, two-level hierarchical models in which students were nested within schools. We used MPlus (Version 7, see Muthén & Muthén, 2012) to conduct analyses and obtained estimates after applying sampling weights at the student and school levels.[2] Because the ICCS 2016 sampling design typically meant only one classroom was sampled from within each school, it is not possible to separate between-school variation from between-classroom variation (Rutkowski, Gonzalez, Joncas, & von Davier, 2010). In our modeling, we treated (as noted above) the students as nested within schools, even in schools where more than one classroom had been sampled and assessed. Details regarding the multilevel modeling presented in this chapter will be provided in the ICCS 2016 technical report (Schulz, Carstens, Losito, & Fraillon, forthcoming).

During multivariate analyses, proportions of missing data may increase considerably as more variables are included in the model. For the multilevel analyses of civic knowledge, 93 percent of students, on average, had valid data for all variables included in the model. However, the Dominican Republic had a considerably lower proportion of valid data, with only 81 percent of the weighted sample. Therefore, data from this country are flagged in the analysis tables, and results should be interpreted with some caution, as should the results from Hong Kong (SAR) and the Republic of Korea, both of which did not meet IEA sample participation rate requirements.

Table 7.1 shows estimates of overall variance[3] and between-school and within-school variation in civic knowledge across the ICCS 2016 countries. The percentages of between-school variance differed considerably across the countries, ranging from six percent in Finland and Norway to 55 percent in the Netherlands; on average, we found 23 percent of the variance at the school level. On average cross-nationally, Model 1 (containing student background and social context variables as predictors), explained 16 percent of the within-school variance and 63 percent of the between-school variance. Model 2 (containing civic learning factors) explained only eight percent of the within-school variance and 32 percent of the between-school variance. With Model 3 (which included all variables), the corresponding estimates at student and school level were 20 and 71 percent, respectively.

Analyses revealed considerable variation in the proportions of explained variance across countries. For Model 1, estimates of explained variance ranged from a minimum of six to a maximum of 28 percent within schools, and from 36 to 86 percent between schools. For Model 2, the lowest variance explanation was four percent within schools, ranging to a maximum of 15 percent, while the between-school variance explanation ranged from zero to 68 percent. For Model 3, which included all predictor variables, estimates of explained variance ranged from nine to 30 percent within schools, and from 45 to 90 percent between schools.

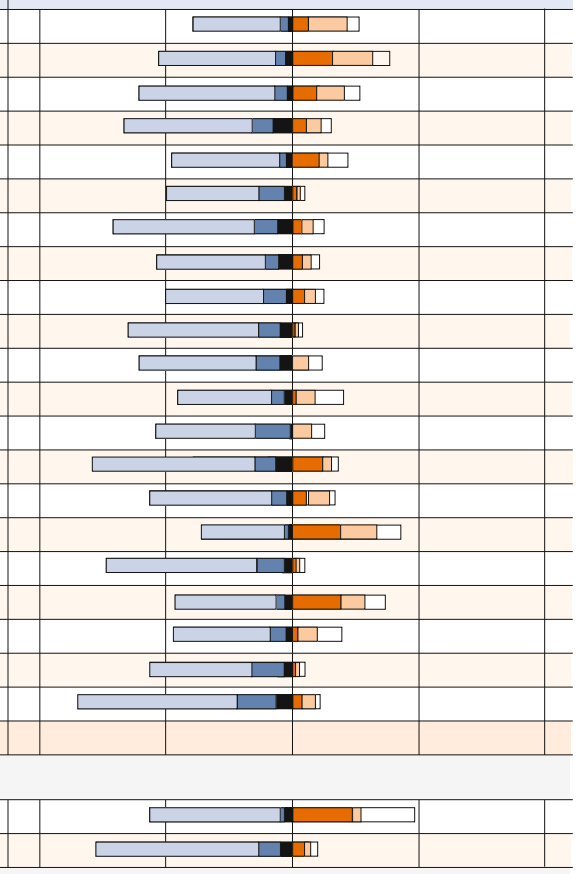
The graphic on the right-hand side of Table 7.2 illustrates the proportions of variance found at student level (left side of the graph) and school level (right side of graph). The color shadings indicate how much each model explained the variance. The bar chart illustrates the considerable differences across the ICCS 2016 countries in both overall between-school variation and explained variance. This observation is in line with previous comparative multilevel analyses of civic knowledge (see Schulz et al., 2010).

2 Student-level and school-level weights were normalized so that at each level the sum of weights was equal to the number of sampled students or schools.

3 The overall variance was computed as the sum of within-school and between-school variance. Note, however, that with multilevel modeling, this variance is not necessarily equal to the square of the standard deviation of test scores in a country.

Table 7.1: Total and explained variance in civic knowledge

Country	Percent of variance explained by:										
	Variance estimates (Model 0)				Model 1		Model 2		Model 3		Variance within schools / Variance between schools
	Total variance	Within schools	Between schools	Percent between schools	Within schools	Between schools	Within schools	Between schools	Within schools	Between schools	
Belgium (Flemish)	6516	3879	2637	40	8	82	6	22	13	82	
Bulgaria	9168	5299	3869	42	9	73	7	40	13	81	
Chile	8662	6036	2626	30	11	66	4	35	12	78	
Chinese Taipei	8128	6632	1496	18	17	77	12	39	24	82	
Colombia	6954	4757	2197	32	6	53	6	48	11	64	
Croatia	5503	4974	529	10	24	48	8	27	27	60	
Denmark†	8390	7114	1276	15	19	62	9	35	22	66	
Dominican Republic (r)	6386	5351	1035	16	12	65	11	38	20	75	
Estonia[1]	6325	5013	1312	21	21	56	6	36	23	68	
Finland	6890	6479	411	6	17	53	9	40	21	60	
Italy	7197	6041	1157	16	20	56	8	4	24	56	
Latvia[1]	6491	4542	1949	30	13	36	11	7	19	45	
Lithuania	6643	5348	1295	19	28	53	8	0	29	56	
Malta	9671	7909	1762	18	13	82	9	68	20	86	
Mexico	7347	5613	1734	24	11	86	5	32	15	90	
Netherlands†	7807	3520	4287	55	7	74	5	44	9	78	
Norway (9)	7833	7363	471	6	17	69	8	27	21	72	
Peru	8230	4572	3658	44	9	63	6	55	14	80	
Russian Federation	6606	4638	1969	30	18	43	7	11	20	50	
Slovenia	6098	5632	467	8	24	51	15	27	30	70	
Sweden[1]	9547	8461	1086	11	23	81	10	37	27	84	
ICCS 2016 average				**23**	**16**	**63**	**8**	**32**	**20**	**71**	
Countries not meeting sampling requirements											
Hong Kong SAR	10447	5583	4864	47	4	34	6	49	9	55	
Korea, Republic of[2]	8778	7745	1033	12	13	69	12	44	20	76	



Notes:
() Standard errors appear in parentheses.
(9) Country deviated from International Defined Population and surveyed adjacent upper grade.
† Met guidelines for sampling participation rates only after replacement schools were included.
[1] National Defined Population covers 90% to 95% of National Target Population.
[2] Country surveyed target grade in the first half of the school year.
An "(r)" indicates that data are available for at least 70% but less than 85% of students.

Table 7.2 also shows the unstandardized regression coefficients for student characteristics and social background variables included in Model 1 in comparison with those recorded when we included these variables, together with predictors reflecting civic learning contexts, in Model 3. We recorded significant positive effects in nearly every country for (female) gender and use of the test language at home. After controlling for other variables in the model, we found that, on average across countries, females outperformed males by 18 civic knowledge scale score points (14 points when included in Model 3 with the variables related to civic learning), while students speaking the test language at home achieved scores 28 points higher than the scores of students who spoke another language at home (27 points in Model 3).

In all countries, students expecting to attain a university degree had significantly higher levels of civic knowledge than those who did not expect to attain a university degree. On average, the score point difference between the two categories was 39 points—a difference that was only slightly higher than the difference in Model 3 of 36 points. In more than half of the ICCS 2016 countries, students' interest in political or social issues was positively associated with civic knowledge, with a score point difference of 11 points between those who were "quite or very interested" and those who were "not at all or not very interested." However, after controlling for other civic learning factors included in Model 3, we observed a considerably lower difference of six scale score points.

Students' socioeconomic background was positively associated with civic knowledge in all countries, and a change of one (national) standard deviation corresponded with an increase of 14 score points, which was of a similar size in Model 3 (13 score points). The socioeconomic context of schools, computed as the composite score for students aggregated at the school level, was positively associated with civic knowledge in all except five countries (Croatia, Finland, Lithuania, Norway, Slovenia), all of which had relatively low proportions of between-school variance (see Table 7.1). The average net effect was 28 score points per (national student-level) standard deviation. After we controlled for civic learning factors, we recorded a slightly lower average effect of 24 score points. The largest Model 1 regression coefficients recorded (of 50 score points or more, equivalent to half an international standard deviation) were for Belgium (Flemish), Bulgaria, and the Netherlands, all three of which were where we found the highest estimates of between-school variance across the ICCS 2016 countries.

Table 7.3 shows the unstandardized regression coefficients for student-level indicators of civic learning processes contrasted with those in Model 2, which included only process variables, and those in Model 3, which controlled for student characteristics and the schools' social context. Analyses revealed significant positive associations between students' participation in discussion of political or social issues (with peers or parents) and civic knowledge in 10 countries, and significant negative associations in three countries—Colombia, the Dominican Republic, and Peru. On average, a difference of almost four score points corresponded to a change of one national standard deviation.

After controlling for student characteristics and social background, we found that, on average, many of the associations were no longer statistically significant. Significant positive regression coefficients remained in just three countries, and Model 3 results also included significant negative coefficients in four other countries. Students' exposure to media information (a dichotomous variable) was significantly and positively associated with civic knowledge in four countries (Chile, Chinese Taipei, Italy, Netherlands), which all recorded relatively large effects (from 11 to 30 score points). The associations in these countries remained significant after we controlled for student characteristics and social background (Model 3).

The variable denoting students' perceptions of having learned about specific civic topics at school was a positive and significant predictor of civic knowledge in seven countries. Finland and Lithuania recorded significant negative coefficients. On average, a difference of one national

Table 7.2: Student-level and school-level regression coefficients for civic knowledge (student background and schools' social context)

Country	Student characteristics								Schools' social context			
	Students' gender (female)		Test language use at home		Expected university degree		Students' interest in political and social issues		Socioeconomic background at home		School average of students' socioeconomic background	
	Model 1	Model 3	Model 1	Model 3	Model 1	Model 3	Model 1	Model 3	Model 1	Model 3	Model 1	Model 3
Belgium (Flemish)	6.7 (4.5)	2.7 (4.0)	**40.1** (6.2)	**38.7** (6.5)	**22.8** (4.5)	**19.7** (4.0)	**9.1** (4.2)	4.4 (4.1)	**9.6** (2.6)	**8.8** (2.5)	**51.3** (6.1)	**48.3** (6.4)
Bulgaria	**25.6** (4.7)	**20.9** (4.7)	13.5 (8.3)	11.6 (7.5)	**32.2** (6.8)	**29.1** (6.9)	-3.7 (5.0)	-5.8 (5.3)	**9.6** (3.1)	**9.3** (3.0)	**57.5** (7.7)	**49.4** (7.8)
Chile	**15.4** (3.6)	**12.9** (3.6)	**40.4** (12.4)	**36.3** (12.0)	**43.8** (3.2)	**41.2** (3.1)	**13.7** (4.1)	**9.2** (4.0)	**10.4** (2.4)	**10.1** (2.4)	**32.7** (6.3)	**30.7** (5.8)
Chinese Taipei	**21.3** (3.5)	**17.7** (3.4)	**16.7** (4.8)	**15.5** (4.9)	**54.5** (3.9)	**47.2** (3.8)	2.3 (3.7)	-4.4 (4.0)	**13.6** (2.4)	**12.6** (2.1)	**32.1** (5.3)	**28.4** (5.7)
Colombia	1.6 (2.9)	-2.7 (2.7)	10.9 (18.0)	7.2 (17.4)	**40.2** (4.9)	**37.5** (4.9)	3.7 (3.7)	1.1 (3.5)	**9.0** (1.5)	**8.2** (1.5)	**27.1** (5.8)	**15.9** (4.8)
Croatia	**14.2** (3.4)	**11.0** (3.6)	12.4 (11.6)	13.1 (11.5)	**54.8** (4.4)	**52.1** (4.4)	**16.8** (4.4)	**12.3** (4.4)	**10.6** (2.3)	**9.5** (2.4)	3.9 (4.7)	6.7 (4.5)
Denmark†	**19.8** (2.4)	**17.9** (2.4)	**41.5** (7.3)	**40.8** (7.0)	**37.5** (3.0)	**34.2** (3.0)	**30.1** (2.9)	**20.3** (3.1)	**19.5** (1.6)	**18.5** (1.7)	**27.3** (6.8)	**22.0** (6.4)
Dominican Republic (r)	**22.1** (3.9)	**18.0** (3.7)	5.6 (12.9)	3.2 (12.8)	**33.1** (3.7)	**30.2** (3.6)	-7.2 (4.4)	**-9.4** (4.4)	**13.3** (2.1)	**10.9** (2.1)	**25.6** (6.6)	**19.8** (6.8)
Estonia[1]	**20.1** (3.2)	**17.7** (3.2)	**45.6** (6.9)	**45.1** (6.7)	**36.1** (3.8)	**34.3** (3.8)	**21.0** (3.5)	**16.2** (3.8)	**16.7** (2.0)	**16.5** (2.0)	**18.8** (5.4)	**14.4** (5.1)
Finland	**28.0** (4.1)	**24.4** (4.2)	**41.9** (13.8)	**43.3** (13.7)	**28.1** (3.9)	**26.1** (4.0)	**23.4** (5.4)	**12.4** (5.2)	**17.7** (1.9)	**15.5** (2.0)	2.4 (5.6)	0.9 (6.7)
Italy	**13.6** (3.4)	**9.9** (3.4)	**31.1** (5.6)	**27.9** (5.4)	**44.9** (4.4)	**41.2** (4.4)	**12.3** (3.7)	**7.8** (3.8)	**13.7** (2.0)	**14.1** (2.0)	**23.2** (5.3)	**24.0** (5.4)
Latvia[1]	**24.8** (3.6)	**17.5** (3.3)	**19.3** (7.1)	**18.0** (6.8)	**29.3** (3.9)	**27.0** (3.9)	**9.1** (3.6)	**7.4** (3.3)	**12.0** (2.2)	**10.2** (2.1)	**17.2** (7.0)	**25.0** (6.2)
Lithuania	**16.6** (3.5)	**13.3** (3.9)	**47.8** (11.9)	**48.3** (11.1)	**59.9** (3.9)	**56.8** (3.9)	4.6 (3.8)	3.6 (4.1)	**14.1** (2.1)	**12.9** (2.2)	13.2 (6.9)	**15.8** (6.7)
Malta	**20.7** (8.0)	9.8 (7.4)	**13.3** (4.0)	**14.6** (4.2)	**50.5** (4.9)	**45.5** (4.5)	1.1 (3.8)	-6.2 (3.7)	**17.3** (2.1)	**15.5** (2.0)	**40.1** (7.1)	**26.8** (8.3)
Mexico	**22.4** (5.4)	**18.5** (5.1)	**35.7** (9.8)	**27.3** (7.9)	**40.3** (6.1)	**38.0** (5.4)	0.4 (7.1)	-6.4 (7.0)	**15.3** (3.0)	**13.3** (3.1)	**27.0** (5.3)	**25.3** (4.9)
Netherlands†	**13.1** (2.4)	**11.2** (2.5)	6.6 (8.8)	5.5 (8.8)	**18.9** (3.0)	**17.2** (3.1)	**19.3** (4.7)	**12.6** (5.0)	**9.4** (1.6)	**8.4** (1.5)	**86.9** (6.0)	**71.7** (7.0)
Norway (9)[1]	**21.0** (3.2)	**18.3** (3.1)	**36.9** (6.0)	**35.9** (5.7)	**33.5** (3.5)	**30.7** (3.3)	**21.3** (3.1)	**15.8** (3.5)	**20.0** (2.0)	**18.0** (2.0)	11.8 (6.7)	11.6 (5.9)
Peru	2.5 (3.4)	0.3 (3.5)	16.6 (9.6)	10.3 (9.7)	**38.6** (3.7)	**35.3** (3.7)	-4.8 (4.0)	-5.7 (3.8)	**11.8** (2.1)	**11.6** (2.1)	**45.0** (6.8)	**29.4** (6.0)
Russian Federation	**10.3** (3.3)	6.2 (3.3)	**42.6** (9.4)	**42.9** (9.6)	**41.1** (3.6)	**38.4** (3.7)	**11.1** (3.4)	5.6 (3.5)	**13.2** (1.9)	**12.9** (1.9)	**20.1** (6.7)	**22.3** (6.6)
Slovenia	**33.6** (3.7)	**28.5** (3.5)	**31.5** (6.8)	**32.1** (7.2)	**36.4** (4.0)	**31.8** (3.8)	**16.9** (4.7)	4.5 (4.8)	**20.1** (2.2)	**17.0** (2.2)	8.0 (5.0)	**12.2** (4.6)
Sweden[1]	**24.3** (5.1)	**20.4** (4.9)	**43.4** (8.9)	**49.1** (7.8)	**40.0** (4.8)	**35.8** (5.1)	**36.9** (4.6)	**27.7** (5.1)	**22.1** (3.0)	**20.4** (3.1)	**23.5** (5.6)	**18.9** (6.4)
ICCS 2016 average	**18.0** (0.9)	**14.0** (0.9)	**28.3** (2.1)	**27.0** (2.0)	**38.9** (0.9)	**35.7** (0.9)	**11.3** (0.9)	**5.9** (0.9)	**14.2** (0.5)	**13.1** (0.5)	**28.3** (1.4)	**24.7** (1.3)
Countries not meeting sample participation requirements												
Hong Kong SAR	**15.2** (3.8)	**14.1** (3.8)	-3.3 (6.2)	-1.0 (6.5)	**23.6** (4.0)	**20.9** (3.8)	**17.3** (3.2)	**12.3** (3.5)	-0.6 (2.1)	-1.8 (2.1)	**57.6** (12.5)	21.2 (15.6)
Korea, Republic of[2]	**28.8** (5.8)	**27.1** (5.2)	38.7 (34.0)	28.3 (35.0)	**38.6** (5.0)	**34.1** (5.0)	**20.7** (3.6)	7.5 (4.0)	**18.1** (2.3)	**13.4** (2.3)	**34.8** (7.2)	**30.1** (7.2)

Notes:
() Standard errors appear in parentheses. Statistically significant coefficients ($p < 0.05$) are displayed in **bold**.
(9) Country deviated from International Defined Population and surveyed adjacent upper grade.
† Met guidelines for sampling participation rates only after replacement schools were included.
[1] National Defined Population covers 90% to 95% of national target population.
[2] Country surveyed target grade in the first half of the school year.
An "(r)" indicates that data are available for at least 70% but less than 85% of students.

Table 7.3: Student-level regression coefficients for civic knowledge (students' civic learning outside school and at school)

Country	Civic learning outside school				Civic learning at school					
	Discussion of political or social issues		Media information		Having learned at school about civic issues		Open classroom climate for discussion of political/social issues		Students' civic engagement at school	
	Model 2	Model 3	Model 2	Model 3	Model 2	Model 3	Model 2	Model 3	Model 2	Model 3
Belgium (Flemish)	0.9 (2.1)	0.3 (2.2)	4.1 (3.8)	1.7 (3.6)	-0.8 (2.3)	0.2 (2.3)	**10.9** (2.2)	**10.5** (2.2)	**10.5** (2.6)	**8.0** (2.4)
Bulgaria	-1.8 (2.7)	-1.8 (2.8)	4.9 (6.1)	7.3 (5.9)	1.7 (2.7)	0.0 (2.6)	**19.7** (3.1)	**16.7** (3.0)	-2.2 (2.9)	-3.4 (2.8)
Chile	2.9 (2.0)	-0.7 (1.8)	**12.2** (3.6)	**11.5** (3.8)	2.1 (1.8)	1.5 (1.7)	**11.1** (1.6)	**9.1** (1.5)	3.1 (1.8)	0.5 (1.7)
Chinese Taipei	-0.9 (2.0)	**-3.7** (1.9)	**29.8** (6.7)	**25.3** (6.4)	**21.3** (1.9)	**17.8** (1.9)	**7.1** (2.0)	**5.4** (2.0)	**5.1** (2.1)	3.7 (2.0)
Colombia	**-4.1** (1.8)	**-4.8** (1.5)	-1.7 (4.2)	-2.0 (4.2)	2.3 (1.9)	1.5 (1.9)	**14.6** (1.5)	**13.7** (1.5)	**8.6** (1.6)	**8.2** (1.6)
Croatia	**5.6** (2.0)	1.3 (2.0)	6.0 (4.6)	1.2 (4.2)	-0.5 (2.1)	0.5 (1.9)	**10.8** (2.0)	**7.2** (2.0)	**11.8** (2.0)	**6.1** (1.8)
Denmark†	**11.2** (1.8)	2.2 (1.9)	4.5 (3.7)	3.0 (3.5)	2.1 (1.5)	2.3 (1.4)	**16.7** (1.6)	**13.3** (1.6)	**7.8** (1.7)	**4.1** (1.7)
Dominican Republic (r)	**-5.7** (1.9)	**-4.3** (1.9)	3.3 (5.8)	1.5 (5.4)	**12.9** (2.1)	**11.2** (2.0)	**20.5** (2.3)	**17.2** (2.3)	-2.4 (2.2)	-3.2 (2.1)
Estonia[1]	**9.2** (2.0)	1.9 (2.0)	-3.1 (4.6)	-3.5 (4.4)	2.5 (2.1)	1.3 (1.9)	**6.8** (1.9)	**6.4** (1.7)	**9.2** (2.1)	**3.8** (1.9)
Finland	**17.7** (2.9)	**13.3** (2.6)	2.5 (5.3)	0.4 (5.0)	**-11.2** (2.1)	**-8.6** (2.1)	**11.2** (3.2)	**7.9** (2.9)	**9.7** (3.1)	5.6 (2.9)
Italy	1.2 (2.2)	-3.4 (2.2)	**10.7** (3.7)	**7.8** (3.8)	**11.6** (2.6)	**8.6** (2.3)	**15.3** (2.2)	**12.3** (1.9)	0.5 (2.0)	-1.2 (1.9)
Latvia[1]	0.3 (2.0)	-2.2 (1.8)	-1.5 (3.9)	-3.2 (4.0)	1.2 (2.1)	0.9 (2.0)	**15.7** (2.1)	**13.5** (2.0)	**14.4** (1.9)	**8.7** (1.8)
Lithuania	4.3 (2.9)	-0.6 (2.0)	0.3 (4.9)	-0.8 (4.8)	**-5.8** (2.5)	-3.8 (2.1)	0.5 (2.7)	-0.3 (2.2)	**20.7** (2.4)	**9.1** (2.4)
Malta	**7.3** (2.1)	**5.5** (2.1)	1.0 (4.0)	1.2 (3.8)	-2.3 (2.4)	-0.7 (2.1)	**23.1** (2.4)	**21.1** (2.1)	**8.3** (2.0)	**5.0** (1.9)
Mexico	-2.2 (2.2)	-1.4 (2.6)	3.2 (5.9)	2.6 (5.3)	**10.0** (2.4)	**8.6** (2.2)	**8.4** (2.4)	**6.4** (2.0)	**6.7** (2.3)	**4.1** (2.0)
Netherlands†	**3.4** (1.6)	0.0 (1.7)	**11.2** (2.9)	**9.4** (2.9)	**4.8** (1.9)	**4.6** (1.9)	4.0 (2.2)	3.7 (2.1)	**5.8** (1.7)	**4.3** (1.6)
Norway (9)[1]	**4.6** (2.2)	-0.9 (2.1)	-0.1 (3.4)	-3.4 (3.1)	-1.2 (2.0)	0.3 (1.9)	**13.7** (2.3)	**11.0** (2.1)	**16.7** (1.7)	**11.1** (1.6)
Peru	**-7.7** (2.4)	**-7.7** (2.3)	9.6 (5.6)	6.8 (5.2)	**8.1** (2.0)	**6.7** (1.9)	**13.0** (2.0)	**12.3** (1.9)	2.5 (2.1)	1.4 (2.0)
Russian Federation	**4.6** (2.0)	1.9 (1.8)	-0.6 (5.2)	-1.7 (4.9)	1.0 (1.9)	-0.3 (1.7)	**11.6** (2.3)	**10.4** (2.1)	**8.9** (2.0)	3.5 (1.9)
Slovenia	**8.6** (2.1)	**6.0** (1.8)	-6.4 (3.5)	-4.5 (3.1)	**4.8** (1.8)	**4.6** (1.7)	**13.9** (2.0)	**9.9** (1.9)	**18.3** (2.0)	**11.3** (1.9)
Sweden[1]	**13.8** (2.9)	2.9 (3.1)	-6.0 (4.8)	-6.2 (5.3)	4.2 (2.6)	3.7 (2.9)	**12.3** (2.5)	**10.6** (2.3)	**16.4** (2.7)	**11.5** (2.4)
ICCS 2016 average	**3.5** (0.5)	0.2 (0.5)	**4.0** (1.0)	**2.6** (1.0)	**3.3** (0.5)	**2.9** (0.4)	**12.4** (0.5)	**10.4** (0.5)	**8.6** (0.5)	**4.9** (0.4)
Countries not meeting sample participation requirements										
Hong Kong SAR	**-5.2** (2.1)	**-7.1** (2.2)	**20.1** (5.3)	**17.6** (5.3)	**11.9** (2.1)	**11.0** (2.0)	**7.7** (2.2)	**7.0** (2.2)	**6.2** (2.1)	**5.3** (2.1)
Korea, Republic of[2]	**7.1** (2.5)	2.4 (2.4)	**14.2** (5.7)	**14.0** (5.4)	**9.6** (2.9)	**8.9** (2.9)	-2.6 (2.7)	-3.0 (2.4)	**22.5** (2.3)	**17.9** (2.4)

Notes:
Statistically significant coefficients ($p < 0.05$) are displayed in **bold**.
() Standard errors appear in parentheses.
(9) Country deviated from International Defined Population and surveyed adjacent upper grade.
† Met guidelines for sampling participation rates only after replacement schools were included.
[1] National Defined Population covers 90% to 95% of national target population.
[2] Country surveyed target grade in the first half of the school year.
An "(r)" indicates that data are available for at least 70% but less than 85% of students.

standard deviation was associated with a very small test score difference of about three points. We found similar associations after controlling for student characteristics and socioeconomic context (Model 3).

In line with findings from ICCS 2009, all of the ICCS 2016 countries, except Lithuania and the Netherlands, recorded significant positive associations between students' perceptions of an open classroom climate for discussion of political and social issues and civic knowledge. On average, a change of 12 test score points (about an eighth of an international standard deviation) was associated with a change in one (national) standard deviation in the open classroom climate scale. The regression coefficients were only slightly smaller after we controlled for student characteristics and socioeconomic factors (Model 3).

Students' engagement in civic activities at school was significantly and positively associated with civic knowledge in 16 countries. On average, a change in one national standard deviation was associated with a change of almost nine civic knowledge scale points. When we included student characteristics and socioeconomic background in our modeling (Model 3), we found a significant positive association for this variable in 13 countries, with an average net effect of five scale points.

Table 7.4 shows the multilevel regression coefficients for the three variables related to civic learning, which were aggregated at the school level. Based on analyses of Model 2, average perceptions of students' learning of civic issues were significant positive predictors of civic knowledge in four countries (Chile, Chinese Taipei, Mexico, Peru); the effects were negative in two countries—Bulgaria and the Netherlands. According to the Model 3 analyses, the only country where we recorded a statistically significant positive regression coefficient was Chile.

Average school-level perceptions of open classroom climate were positively associated with civic knowledge in eight countries in Model 2. This predictor remained significant in five countries after we controlled for student characteristics and socioeconomic context (Model 3). Average measures of students' civic engagement at school were significantly positively associated with civic knowledge in two countries (Belgium/Flemish, Netherlands), while in two other countries (Dominican Republic, Peru) we recorded significant negative relationships. According to Model 3, this variable had statistically significant associations in only two countries—Bulgaria, where it was a positive predictor, and Peru, where it was a negative predictor.

Table 7.5, which summarizes the results of the multilevel analyses, displays the statistically significant positive and negative effects for each predictor variable. While effects of student-level factors related to civic learning (with the exception of discussions of political and social issues) remained mostly statistically significant after we controlled for background variables, school-level factors related to civic learning tended to have fewer significant effects after we controlled for the associations with the socioeconomic context of schools. However, in Model 3, the positive effects of average perceptions of open classroom climate remained significant in five out of eight countries.

Table 7.4: School-level regression coefficients for civic knowledge (school context for civic learning)

Country	Student learning of civic issues (aggregate)		Open classroom climate for discussion (aggregate)		Students' civic engagement at school (aggregate)	
	Model 2	Model 3	Model 2	Model 3	Model 2	Model 3
Belgium (Flemish)	1.5 (12.4)	5.7 (6.7)	0.5 (10.9)	-6.8 (9.3)	**31.8** (8.9)	4.3 (6.9)
Bulgaria	**-54.9** (19.7)	-3.9 (13.9)	**79.6** (14.9)	**27.3** (10.1)	20.3 (17.2)	**21.0** (9.2)
Chile	**32.6** (15.4)	**33.2** (8.7)	25.1 (15.2)	8.7 (7.8)	-1.5 (14.1)	-5.1 (9.9)
Chinese Taipei	**35.6** (12.5)	4.2 (7.8)	7.4 (13.1)	-2.2 (8.1)	9.0 (18.2)	14.8 (11.4)
Colombia	-27.4 (17.0)	-25.7 (13.8)	**61.5** (12.7)	**34.7** (14.2)	-6.4 (11.9)	-2.3 (10.8)
Croatia	-3.9 (12.5)	6.5 (10.9)	20.0 (10.4)	8.0 (9.1)	-5.4 (7.4)	2.5 (6.5)
Denmark†	6.2 (13.6)	9.0 (10.7)	**26.4** (12.3)	2.3 (7.2)	-16.6 (9.7)	-12.4 (8.0)
Dominican Republic (r)	-1.5 (14.3)	-9.1 (10.1)	**32.9** (12.2)	18.1 (9.4)	**-24.7** (11.5)	-12.5 (8.8)
Estonia[1]	-2.7 (9.0)	8.2 (7.6)	**38.4** (11.1)	**21.0** (8.8)	0.2 (8.8)	1.5 (6.7)
Finland	-1.6 (8.5)	-4.9 (7.0)	-2.2 (9.5)	-2.7 (9.0)	5.0 (8.3)	-2.3 (8.7)
Italy	0.5 (12.1)	-3.1 (8.3)	-10.4 (14.9)	-15.2 (9.5)	9.6 (6.4)	4.3 (4.7)
Latvia[1]	7.4 (16.1)	23.3 (14.0)	10.6 (14.3)	9.0 (12.3)	-22.5 (13.4)	-16.9 (11.6)
Lithuania	-19.9 (22.1)	-7.9 (12.0)	6.8 (17.8)	8.3 (13.6)	-5.0 (20.1)	6.7 (10.9)
Malta	-30.2 (17.6)	-9.3 (14.4)	**72.0** (18.4)	32.6 (19.0)	11.3 (12.9)	3.1 (10.2)
Mexico	**42.6** (15.3)	13.5 (8.4)	13.3 (14.9)	0.6 (7.4)	-1.0 (18.6)	8.6 (9.8)
Netherlands†	**-38.2** (15.8)	-13.0 (9.5)	**82.4** (17.0)	**36.3** (12.2)	**34.7** (15.6)	7.5 (10.0)
Norway (9)[1]	8.0 (13.0)	9.3 (10.4)	6.8 (11.1)	0.3 (11.0)	11.9 (10.7)	2.9 (9.0)
Peru	**32.2** (14.1)	6.8 (10.1)	**56.8** (12.0)	**38.1** (9.0)	**-34.2** (14.2)	**-21.9** (9.5)
Russian Federation	13.5 (14.6)	17.2 (10.4)	5.4 (10.1)	9.1 (10.2)	-14.5 (13.0)	-11.3 (10.4)
Slovenia	0.4 (7.2)	7.3 (5.5)	0.5 (7.4)	0.7 (6.6)	0.4 (8.1)	0.1 (6.7)
Sweden[1]	2.4 (13.4)	11.1 (10.2)	5.5 (12.6)	-9.9 (9.5)	15.0 (8.5)	6.6 (9.1)
ICCS 2016 average	0.1 (3.2)	3.7 (2.3)	**25.7** (2.9)	**10.4** (2.3)	0.8 (2.8)	0.0 (2.0)
Countries not meeting sample participation requirements						
Hong Kong SAR	**79.5** (24.8)	**63.0** (21.2)	-4.1 (17.5)	0.6 (16.5)	**72.1** (20.1)	**54.5** (24.1)
Korea, Republic of[2]	6.3 (12.0)	1.3 (10.9)	-4.4 (11.9)	**16.6** (8.2)	**38.4** (10.8)	-2.2 (10.8)

Notes:
() Standard errors appear in parentheses. Statistically significant coefficients ($p < 0.05$) are displayed in **bold**.
(9) Country deviated from International Defined Population and surveyed adjacent upper grade.
† Met guidelines for sampling participation rates only after replacement schools were included.
[1] National Defined Population covers 90% to 95% of national target population.
[2] Country surveyed target grade in the first half of the school year.
An "(r)" indicates that data are available for at least 70% but less than 85% of students.

Explaining variation in expected civic participation in the future

Verba, Schlozman, and Brady (1995) identified three types of variables that condition political participation: (i) resources enabling individuals to participate (time, knowledge), (ii) psychological engagement (interest, efficacy), and (iii) the "recruitment networks" that help to bring individuals into politics (such as social movements, church groups, political parties). Although all of these variables could potentially relate to social background, individuals with higher levels of educational attainment tend to have higher levels of civic knowledge, interest, and self-confidence, and to be more engaged in social networks (Janoski & Wilson, 1995; Vollebergh, Iedema, & Raaijmakers, 2001). Putnam (1993), building on Coleman's (1988) concept of social capital, emphasized the importance of three components (social trust, social norms, and social networks) that together form a "virtuous cycle" and provide a context for successful cooperation and participation in a society. Prior research using data from ICCS 2009 has shown that students' expected participation in elections or political activities is associated with gender, interest in civic issues, experience in civic engagement, self-efficacy, civic knowledge, and perceptions of civic institutions (see Schulz et al., 2010; Schulz, Fraillon, & Ainley, 2015). Similar findings have also emerged from other research investigating factors associated with students' civic engagement (Solhaug, 2006; Quintelier, 2008).[4]

4 Knowles, Torney-Purta, and Barber (2017) review many other studies presenting analyses of factors explaining students' expected civic engagement, with the analyses based on data from CIVED 1999 and ICCS 2009.

Table 7.5: Summary of statistically significant effects across countries

Predictor variables	MODEL 1: Number of countries where the predictor had a statistically significant...		MODEL 2: Number of countries where the predictor had a statistically significant...		MODEL 3: Number of countries where the predictor had a statistically significant...	
	positive effect	negative effect	positive effect	negative effect	positive effect	negative effect
Students' personal and social background						
Gender (female)	18	0			16	0
Test language used at home	15	0			15	0
Expected university education	21	0			21	0
Interest in political or social issues	13	0			10	1
Socioeconomic context						
Socioeconomic home background	21	0			21	0
Average socioeconomic background (aggregate)	16	0			18	0
Civic learning outside school						
Discussion of political or social issues			10	3	3	4
Media information			4	0	4	0
Civic learning at school						
Having learned about civic issues			7	2	7	1
Open classroom climate for discussion			19	0	19	0
Civic engagement at school			16	0	13	0
School and community learning context						
Student learning of civic issues (aggregate)			4	2	1	0
Open classroom climate for discussion (aggregate)			8	0	5	0
Civic engagement at school (aggregate)			2	2	1	1

The analyses presented in this chapter focus on explaining variation in two variables related to students' expectations to participate as adults: expected electoral participation and expected active political participation (see Chapter 4 for details). In line with findings from other studies (see, for example, Quintelier, 2008), we found only relatively low proportions of between-school variation in the dependent variables. We therefore chose a single-level multiple regression approach when analyzing the factors explaining variation in this variable.

To explain variation in the dependent variables, we identified four groups of independent variables: (a) variables related to students' background such as gender or students' interest; (b) variables related to past or current participation in community groups or organizations or at school; (c) variables related to students' dispositions for engagement, such as citizenship self-efficacy and civic knowledge; and (d) variables related to students' beliefs about citizenship and institutions.

The individual variables that we selected as predictors were as follows:

- *Student background variables:*
  - Students' gender (female = 1, male = 0)
  - Students' socioeconomic background (nationally standardized with averages of 0 and standard deviations of 1)
  - Parental interest in political and social issues (1 = having at least one parent quite or very interested in political and social issues, 0 = other students)
  - Students' interest in political and social issues (1 = being quite or very interested in political and social issues, 0 = other students).
- *Students' experience with civic participation:*
  - Participation in community organizations and groups (IRT scale, nationally standardized scores with averages of 0 and standard deviations of 1; some of the items included in this scale are described in more detail in Chapter 4)

  - Participation in civic activities at school (IRT scale, nationally standardized scores with averages of 0 and standard deviations of 1; some of the items included in this scale are described in more detail in Chapter 4).
- *Students' dispositions for civic engagement:*
  - Students' sense of citizenship self-efficacy (IRT scale, nationally standardized scores with averages of 0 and standard deviations of 1; see Chapter 4 for details)
  - Civic knowledge (based on five plausible values, nationally standardized scores with averages of 0 and standard deviations of 1; see Chapter 3 for details).
- *Students' beliefs:*
  - Students' perceptions of the importance of conventional citizenship (IRT scale, nationally standardized scores with averages of 0 and standard deviations of 1; see Chapter 5 for details)
  - Students' trust in civic institutions (IRT scale, nationally standardized scores with averages of 0 and standard deviations of 1; see Chapter 5 for details).

Across the participating countries, the average percentage of students in the sample with valid data was 92 percent. The national average percentages ranged from 68 percent in the Dominican Republic to 98 percent in Chinese Taipei. Mindful of these missing values, we compared our results with those from models that used an alternative approach to the treatment of missing values, wherein students with missing values on variables received mean scores or median values, and missing indicator variables were added for each variable (Cohen & Cohen, 1975). Because the regression coefficients from the two approaches were almost identical, we used this simpler approach of "list-wise" exclusion of missing values.

The results in this section of the chapter from three countries—Hong Kong (SAR), the Republic of Korea, and the Dominican Republic—should be interpreted with caution: the surveys in Hong Kong (SAR) and the Republic of Korea did not meet the IEA sample participation requirements and are therefore reported in a separate section of the reporting tables; the results from the Dominican Republic are annotated because fewer than 70 percent of participating students had valid data.

The multiple regression models were estimated using jackknife repeated replication to obtain correct standard errors (see Schulz, 2011). In a regression model, an estimate of the percentage of explained variance can be obtained by multiplying R^2 by 100. Furthermore, in a multiple regression model the variance in the criterion variable can be explained by the combined effect of more than one predictor or block of predictors. By reviewing the contributions of different predictor blocks, we can estimate how much of the explained variance is attributable uniquely to each of the predictors or blocks of predictors, and how much these predictors or blocks of predictors in combination explain this variance. We carried out this estimation by comparing the variance explanation of four additional regression models (each without one of the four blocks of predictors) with the explanatory power of the overall model that included all predictors in combination.[5]

When interpreting the results from these analyses, readers should keep in mind that the ICCS scale scores are standardized at the national level. Hence, regression coefficients should be interpreted in terms of effect size, which means that the coefficients reflect changes in the scores for the two dependent variables (students' expected electoral participation and students' expected active political participation), with changes of one standard deviation in each of the participating countries. When reviewing the size of the regression coefficients, readers should also keep in mind that the

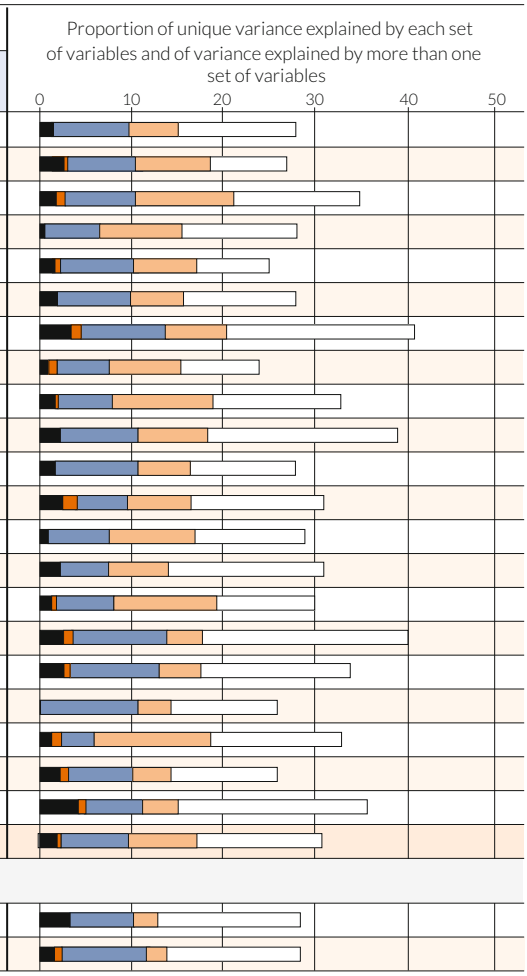
5 The differences between each of the comparison models with the full model provide an estimate of the unique variance attributable to each block of variables. The difference between the sum of block variances and the explained variance by all predictors provides an estimate of the common variance attributable to more than one block of variables.

coefficients are relative to the metric of the two (equated) questionnaire scales, where 10 reflects one international standard deviation for equally weighted countries in ICCS 2009.[6]

Table 7.6 shows the percentages of variance in students' expected electoral participation explained by student background factors alone and by the combined model. Student background factors explained, on average, 12 percent of the variance (ranging from 4% to 22%), while the combined model explained 31 percent of the variation in the criterion variables on average across the ICCS

Table 7.6: Explained variance for expected electoral participation

Country	Percentage of variance explained		Proportion of unique variance explained by each set of variables and of variance explained by more than one set of variables
	by student characteristics and background only	by full model	
Belgium (Flemish)	11 (1.5)	28 (1.5)	
Bulgaria	9 (1.1)	27 (1.9)	
Chile	10 (0.9)	35 (1.4)	
Chinese Taipei	7 (0.9)	28 (1.5)	
Colombia	7 (0.9)	25 (1.4)	
Croatia	11 (1.4)	28 (1.7)	
Denmark†	22 (1.2)	41 (1.5)	
Dominican Republic (s)	4 (0.7)	24 (1.6)	
Estonia[1]	12 (1.2)	33 (1.8)	
Finland	18 (1.4)	39 (1.9)	
Italy	11 (1.2)	28 (1.7)	
Latvia[1]	11 (1.4)	31 (2.0)	
Lithuania	9 (1.1)	29 (1.7)	
Malta	13 (1.1)	31 (1.5)	
Mexico	6 (0.9)	30 (1.4)	
Netherlands†	19 (1.7)	40 (1.9)	
Norway (9)[1]	15 (1.0)	34 (1.3)	
Peru	7 (0.9)	26 (1.5)	
Russian Federation	8 (1.0)	33 (1.7)	
Slovenia	11 (1.4)	26 (1.7)	
Sweden[1]	21 (1.6)	36 (2.1)	
ICCS 2016 average	12 (0.3)	31 (0.4)	
Countries not meeting sampling requirements			
Hong Kong SAR	12 (1.1)	29 (1.8)	
Korea, Republic of[2]	9 (1.3)	29 (2.2)	



Notes:
() Standard errors appear in parentheses.
(9) Country deviated from International Defined Population and surveyed adjacent upper grade.
† Met guidelines for sampling participation rates only after replacement schools were included.
1 National Defined Population covers 90% to 95% of National Target Population.
2 Country surveyed target grade in the first half of the school year.
An "(s)" indicates that data are available for at least 50% but less than 70% of students.
An "(s)" indicates that data are available for at least 50% but less than 70% of students.

6 In the multilevel modeling for civic knowledge presented earlier in this chapter, regression coefficients reflected the metric of civic knowledge test scores, where 100 was the international standard deviation for equally weighted countries in ICCS 2009. Therefore, and also due to the differences across modeling approaches (i.e., multilevel versus single-level regression), the size of regression coefficients should not be compared across the different analyses presented in this chapter.

Table 7.7: Multiple regression coefficients for expected electoral participation (student background and civic participation)

Country	Student background variables				Current and past participation	
	Gender (female)	Socioeconomic background	Parental interest	Students' interest	Participation in community organization and groups	Participation in civic activities at school
Belgium (Flemish)	**-0.8** (0.3)	0.1 (0.2)	**1.2** (0.4)	**2.3** (0.4)	0.2 (0.2)	**0.4** (0.1)
Bulgaria	0.2 (0.4)	-0.1 (0.2)	**2.8** (0.5)	**1.6** (0.4)	0.2 (0.3)	0.2 (0.2)
Chile	0.4 (0.3)	0.2 (0.1)	**2.0** (0.3)	**1.0** (0.3)	0.1 (0.2)	**0.9** (0.2)
Chinese Taipei	-0.2 (0.2)	0.2 (0.1)	**0.7** (0.3)	**1.3** (0.2)	0.2 (0.1)	**0.3** (0.1)
Colombia	0.1 (0.3)	-0.1 (0.1)	**1.3** (0.3)	**1.1** (0.3)	0.2 (0.2)	0.2 (0.2)
Croatia	-0.5 (0.3)	**0.4** (0.2)	**2.2** (0.5)	**1.3** (0.3)	-0.1 (0.2)	0.2 (0.2)
Denmark†	**0.7** (0.2)	**0.3** (0.1)	**2.0** (0.3)	**2.0** (0.2)	**0.3** (0.1)	**0.5** (0.1)
Dominican Republic (s)	0.2 (0.3)	0.0 (0.1)	**1.3** (0.3)	0.2 (0.4)	0.0 (0.2)	**0.7** (0.2)
Estonia[1]	-0.2 (0.4)	0.3 (0.2)	**1.7** (0.3)	**1.4** (0.4)	0.2 (0.2)	0.2 (0.2)
Finland	0.0 (0.3)	**0.6** (0.1)	**2.4** (0.3)	**1.4** (0.3)	0.1 (0.1)	**0.5** (0.1)
Italy	-0.2 (0.2)	0.1 (0.1)	**3.0** (0.5)	**0.6** (0.3)	0.1 (0.1)	**0.3** (0.1)
Latvia[1]	0.1 (0.3)	**0.9** (0.2)	**2.2** (0.6)	**1.4** (0.4)	-0.1 (0.2)	**1.4** (0.2)
Lithuania	0.4 (0.3)	0.1 (0.2)	**2.1** (0.5)	**1.1** (0.3)	-0.1 (0.2)	**0.4** (0.2)
Malta	0.3 (0.3)	**0.5** (0.2)	**1.8** (0.4)	**2.0** (0.3)	**0.4** (0.1)	0.3 (0.2)
Mexico	**0.5** (0.2)	-0.1 (0.1)	**1.2** (0.3)	**0.8** (0.3)	0.0 (0.1)	**0.4** (0.2)
Netherlands†	**-1.0** (0.3)	**0.6** (0.2)	**2.6** (0.4)	**1.4** (0.4)	0.3 (0.2)	**1.0** (0.2)
Norway (9)[1]	**0.4** (0.2)	**0.6** (0.1)	**2.1** (0.3)	**1.0** (0.2)	0.2 (0.1)	**0.6** (0.1)
Peru	-0.1 (0.2)	-0.1 (0.1)	**0.9** (0.3)	**0.9** (0.2)	-0.2 (0.1)	**0.4** (0.1)
Russian Federation	-0.2 (0.3)	**0.4** (0.2)	**0.8** (0.3)	**1.3** (0.3)	0.3 (0.2)	**0.8** (0.2)
Slovenia	**-1.4** (0.3)	**0.7** (0.2)	**1.7** (0.5)	**1.1** (0.4)	0.1 (0.2)	**0.7** (0.2)
Sweden[1]	0.3 (0.3)	**0.4** (0.1)	**2.6** (0.5)	**2.4** (0.3)	-0.2 (0.1)	**0.8** (0.2)
ICCS 2016 average	0.0 (0.1)	**0.3** (0.0)	**1.8** (0.1)	**1.3** (0.1)	**0.1** (0.0)	**0.5** (0.0)
Countries not meeting sample participation requirements						
Hong Kong SAR	**-0.8** (0.3)	**0.6** (0.2)	-0.1 (0.4)	**4.0** (0.4)	0.3 (0.2)	**0.6** (0.2)
Korea, Republic of[2]	0.6 (0.3)	0.2 (0.2)	**1.8** (0.6)	**1.5** (0.3)	0.3 (0.2)	**0.7** (0.2)

Notes:
Statistically significant ($p < 0.05$) coefficients are displayed in **bold**.
() Standard errors appear in parentheses.
(9) Country deviated from International Defined Population and surveyed adjacent upper grade.
† Met guidelines for sampling participation rates only after replacement schools were included.
[1] National Defined Population covers 90% to 95% of National Target Population.
[2] Country surveyed target grade in the first half of the school year.
An "(s)" indicates that data are available for at least 50% but less than 70% of students.

2016 countries, with the range extending from 24 to 41 percent. The graph on the right-hand side illustrates that, in most countries, almost half of the explained variance could be attributed to more than one group of predictors. Both student dispositions (self-efficacy and civic knowledge) and student beliefs (importance of conventional citizenship and trust in civic institutions) made larger unique contributions to the explanation of variance in the dependent variable.

The unstandardized regression coefficients for effects on students' expected electoral participation displayed in Table 7.7 show that associations with student gender were inconsistent and significant in only a few countries. We registered significant positive, but relatively weak, associations between students' expected electoral participation and students' socioeconomic status in 10 countries. Students' expectations of electoral participation were unrelated to socioeconomic status in the remaining countries. Parental interest in political and social issues and also students' interest in political and social issues were, however, consistent predictors across countries. On average, having at least one very interested or one quite interested parent was associated with a difference of almost two score points (equivalent to a fifth of an international standard deviation) in expected electoral participation, while students' interest in political and social issues had a net effect of more than one score point (equivalent to one tenth of an international standard deviation).

Weak, but significant, positive associations between expected electoral participation and students' current or past participation in community groups or organizations emerged in two countries. However, in 16 countries, past or current participation in civic activities at school was a significant positive predictor of expected electoral participation: overall, one (national) standard deviation was associated with an increase of 0.5 of a scale score point on average. The results therefore show that students' experience of civic participation at school was only weakly associated with students' expectations of electoral participation in the future.

Table 7.8 shows the unstandardized regression coefficients for variables related to students' civic dispositions and beliefs. Students' sense of citizenship self-efficacy was a consistent positive predictor of expected electoral participation across the participating countries. On average, one (national) standard deviation was associated with an increase of over one scale score point (equivalent to one tenth of an international standard deviation in the dependent variable). Students' civic knowledge was also a consistently strong, positive predictor of expected electoral participation across countries, with a net effect size of 2.4 scale score points, equivalent to almost a quarter of an international standard deviation. These findings are similar to those from ICCS 2009, and they emphasize the importance, as reflected in the civic knowledge score, of dispositions for engagement such as self-efficacy and the student's ability to comprehend the political world.

Table 7.8: Multiple regression coefficients for expected electoral participation (dispositions and perceptions)

Country	Students' dispositions for civic engagement		Students' perceptions	
	Students' sense of citizenship self-efficacy	Students' civic knowledge	Students' perceptions of the importance of conventional citizenship	Students' trust in civic institutions
Belgium (Flemish)	**0.9** (0.3)	**2.8** (0.2)	**1.7** (0.2)	**1.1** (0.2)
Bulgaria	**1.3** (0.3)	**2.9** (0.3)	**2.1** (0.3)	**1.6** (0.2)
Chile	**1.6** (0.2)	**3.0** (0.1)	**2.6** (0.2)	**2.0** (0.2)
Chinese Taipei	**0.7** (0.2)	**2.3** (0.1)	**2.5** (0.2)	**0.6** (0.1)
Colombia	**1.3** (0.2)	**2.5** (0.2)	**1.8** (0.2)	**1.3** (0.1)
Croatia	**1.0** (0.2)	**2.5** (0.2)	**1.9** (0.2)	**0.9** (0.2)
Denmark†	**1.1** (0.2)	**2.5** (0.1)	**1.5** (0.1)	**1.1** (0.1)
Dominican Republic (s)	**1.6** (0.2)	**1.7** (0.2)	**2.1** (0.2)	**1.2** (0.2)
Estonia[1]	**1.2** (0.2)	**1.9** (0.2)	**2.3** (0.2)	**1.3** (0.2)
Finland	**1.1** (0.1)	**2.3** (0.2)	**1.9** (0.1)	**1.2** (0.1)
Italy	**0.9** (0.2)	**2.5** (0.2)	**1.7** (0.1)	**1.0** (0.1)
Latvia[1]	**1.2** (0.2)	**2.2** (0.2)	**2.1** (0.2)	**1.1** (0.2)
Lithuania	**0.9** (0.2)	**2.5** (0.2)	**2.1** (0.2)	**1.3** (0.2)
Malta	**1.6** (0.2)	**2.0** (0.2)	**2.2** (0.2)	**1.1** (0.2)
Mexico	**1.2** (0.2)	**2.4** (0.2)	**2.5** (0.2)	**1.7** (0.2)
Netherlands†	**1.2** (0.2)	**3.3** (0.2)	**1.3** (0.2)	**1.2** (0.2)
Norway (9)[1]	**1.2** (0.1)	**2.9** (0.1)	**0.8** (0.1)	**1.5** (0.1)
Peru	**1.3** (0.1)	**2.8** (0.2)	**1.5** (0.1)	**0.8** (0.2)
Russian Federation	**1.2** (0.3)	**1.7** (0.2)	**2.5** (0.2)	**1.6** (0.2)
Slovenia	**1.3** (0.2)	**2.6** (0.2)	**1.6** (0.2)	**0.9** (0.2)
Sweden[1]	**1.4** (0.2)	**2.0** (0.2)	**0.9** (0.3)	**1.3** (0.2)
ICCS 2016 average	**1.2** (0.0)	**2.4** (0.0)	**1.9** (0.0)	**1.2** (0.0)
Countries not meeting sample participation requirements				
Hong Kong SAR	**1.6** (0.2)	**2.7** (0.2)	**1.6** (0.2)	**1.1** (0.2)
Korea, Republic of[2]	**1.5** (0.2)	**2.6** (0.2)	**1.2** (0.2)	**0.7** (0.2)

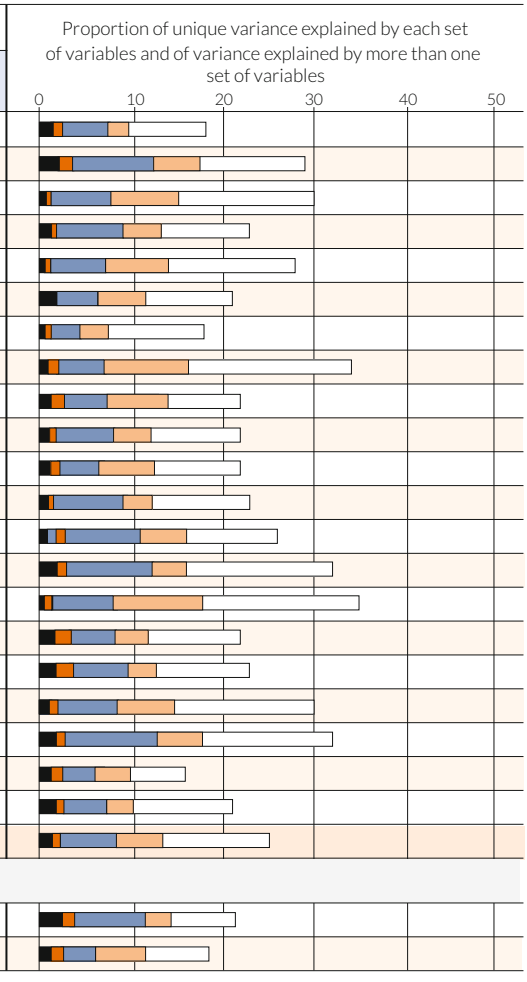
Notes:
Statistically significant ($p < 0.05$) coefficients are displayed in **bold**.
() Standard errors appear in parentheses.
(9) Country deviated from International Defined Population and surveyed adjacent upper grade.
† Met guidelines for sampling participation rates only after replacement schools were included.
[1] National Defined Population covers 90% to 95% of National Target Population.
[2] Country surveyed target grade in the first half of the school year.
An "(s)" indicates that data are available for at least 50% but less than 70% of students.

Students' belief in the importance of conventional citizenship also had consistent significantly positive associations with expected electoral participation: on average one (national) standard deviation was associated with an increase of almost two score points (refer Table 7.8). Students' trust in civic institutions likewise had consistent, positive relationships with the dependent variable; here the net effect was more than one score point.

Table 7.9 shows the explained variance in expected active political participation (e.g., working on a political campaign or running for office), once for the model that included only student background factors and once for the model that included all variables. Background variables explained, on average, six percent of the variation (with the percentages ranging from 4% to 9%), while the model with all predictor variables explained 25 percent on average (range: 16% to 35%). As for the model explaining expected electoral participation, about half of the variance was attributable to more than one group of predictors. Both dispositions and beliefs thus made relatively large contributions to the unique variance explanation.

Table 7.9: Explained variance for active political participation

Country	Percentage of variance explained	
	By student characteristics and background only	by full model
Belgium (Flemish)	5 (1.1)	18 (1.6)
Bulgaria	7 (1.2)	29 (1.9)
Chile	5 (0.7)	30 (1.5)
Chinese Taipei	5 (0.7)	23 (1.4)
Colombia	5 (0.6)	28 (1.5)
Croatia	6 (0.9)	21 (1.6)
Denmark†	7 (0.8)	18 (1.4)
Dominican Republic (s)	7 (0.9)	34 (1.7)
Estonia[1]	4 (0.8)	22 (1.8)
Finland	6 (1.0)	22 (2.0)
Italy	6 (1.0)	22 (1.6)
Latvia[1]	4 (0.8)	23 (1.9)
Lithuania	5 (0.9)	26 (1.9)
Malta	9 (0.9)	32 (1.6)
Mexico	6 (1.0)	35 (1.3)
Netherlands†	6 (0.9)	22 (1.7)
Norway (9)[1]	7 (0.9)	23 (1.3)
Peru	6 (0.8)	30 (1.2)
Russian Federation	6 (1.0)	32 (2.7)
Slovenia	4 (0.8)	16 (1.5)
Sweden[1]	8 (1.1)	21 (1.8)
ICCS 2016 average	**6** (0.2)	**25** (0.4)
Countries not meeting sampling requirements		
Hong Kong SAR	5 (0.9)	22 (2.0)
Korea, Republic of[2]	3 (0.8)	19 (1.6)



Notes:
() Standard errors appear in parentheses.
(9) Country deviated from International Defined Population and surveyed adjacent upper grade.
† Met guidelines for sampling participation rates only after replacement schools were included.
[1] National Defined Population covers 90% to 95% of National Target Population.
[2] Country surveyed target grade in the first half of the school year.
An "(s)" indicates that data are available for at least 50% but less than 70% of students.

Table 7.10 shows the unstandardized regression coefficients for student background variables and factors reflecting experience with civic engagement. In most countries, we observed negative associations between gender (female) and expected active political participation. On average, the difference was associated with one scale score point. This finding suggests (after we had controlled for all other variables in the model) that the male students participating in ICCS were more inclined than the female students to think they would participate in explicitly political activities in the future.

Several countries recorded weak but significant negative associations between students' socioeconomic background and active political participation. The remaining countries recorded no significant effects. In 11 countries, parental interest in political and social issues was positively related to students' expected active political participation (with a net effect of about one score point), while students' interest in political and social issues was a positive predictor in 18 of the 21 countries (with a net effect of more than one score point).

Table 7.10: Multiple regression coefficients for expected active political participation (student background and civic participation)

Country	Student background variables				Current and past participation	
	Gender (female)	Socioeconomic background	Parental interest	Student interest	Participation in community organization and groups	Participation in civic activities at school
Belgium (Flemish)	**-1.0** (0.4)	-0.1 (0.2)	**1.3** (0.5)	**1.7** (0.5)	**0.6** (0.2)	**0.6** (0.2)
Bulgaria	**-1.3** (0.4)	-0.5 (0.3)	**1.5** (0.5)	**1.1** (0.4)	**0.7** (0.3)	0.3 (0.3)
Chile	**-0.7** (0.3)	**-0.5** (0.2)	**1.4** (0.3)	**1.0** (0.4)	**0.6** (0.2)	**0.8** (0.2)
Chinese Taipei	**-1.5** (0.2)	-0.2 (0.1)	0.0 (0.3)	**1.4** (0.3)	**0.4** (0.1)	**0.5** (0.1)
Colombia	**-0.7** (0.3)	**-0.5** (0.2)	0.6 (0.4)	**0.9** (0.4)	**0.6** (0.2)	0.3 (0.2)
Croatia	**-1.7** (0.3)	-0.1 (0.2)	**1.6** (0.5)	**1.6** (0.4)	0.2 (0.2)	**0.5** (0.2)
Denmark†	-0.1 (0.2)	-0.1 (0.1)	0.4 (0.3)	**1.4** (0.2)	**0.7** (0.1)	0.2 (0.1)
Dominican Republic (s)	**-0.8** (0.4)	-0.4 (0.2)	**1.4** (0.3)	0.5 (0.4)	**0.8** (0.2)	**0.5** (0.2)
Estonia[1]	**-1.6** (0.3)	-0.3 (0.2)	0.6 (0.5)	0.4 (0.3)	**0.7** (0.1)	**0.5** (0.2)
Finland	**-1.1** (0.3)	0.1 (0.1)	0.3 (0.4)	**0.8** (0.3)	**0.6** (0.1)	0.2 (0.2)
Italy	**-1.3** (0.3)	0.1 (0.1)	**1.5** (0.5)	**0.8** (0.4)	**0.6** (0.1)	**0.5** (0.2)
Latvia[1]	**-1.6** (0.4)	-0.1 (0.2)	**1.1** (0.5)	**1.5** (0.4)	**0.4** (0.2)	**0.9** (0.2)
Lithuania	**-1.3** (0.4)	0.0 (0.2)	**1.4** (0.6)	**1.4** (0.3)	**0.8** (0.2)	0.1 (0.2)
Malta	**-1.8** (0.3)	0.0 (0.2)	0.6 (0.4)	**2.4** (0.3)	**1.0** (0.2)	0.3 (0.2)
Mexico	-0.3 (0.3)	**-0.5** (0.1)	0.2 (0.3)	0.5 (0.3)	**0.6** (0.2)	**0.4** (0.2)
Netherlands†	**-0.7** (0.3)	0.2 (0.2)	**1.5** (0.4)	**1.4** (0.5)	**0.9** (0.2)	**0.4** (0.2)
Norway (9)[1]	-0.2 (0.3)	0.2 (0.1)	**1.9** (0.3)	**1.1** (0.3)	**1.0** (0.1)	**0.4** (0.1)
Peru	-0.3 (0.3)	**-0.7** (0.1)	0.7 (0.4)	**0.9** (0.3)	**0.5** (0.2)	**0.5** (0.2)
Russian Federation	**-1.8** (0.3)	**-0.5** (0.1)	0.5 (0.5)	**1.0** (0.3)	**0.4** (0.2)	**0.7** (0.3)
Slovenia	**-1.4** (0.3)	-0.1 (0.2)	0.6 (0.5)	**1.4** (0.4)	**0.7** (0.2)	**0.5** (0.2)
Sweden[1]	-0.4 (0.3)	-0.3 (0.2)	**1.7** (0.4)	**1.7** (0.4)	**0.6** (0.2)	**0.4** (0.2)
ICCS 2016 average	**-1.0** (0.1)	**-0.2** (0.0)	**1.0** (0.1)	**1.2** (0.1)	**0.6** (0.0)	**0.4** (0.0)
Countries not meeting sample participation requirements						
Hong Kong SAR	**-1.9** (0.4)	-0.3 (0.2)	-0.2 (0.5)	**2.2** (0.4)	**0.6** (0.2)	**0.9** (0.2)
Korea, Republic of[2]	**-0.8** (0.4)	**-0.5** (0.2)	**1.6** (0.7)	**1.8** (0.5)	**1.2** (0.2)	0.5 (0.3)

Notes:
Statistically significant ($p < 0.05$) coefficients are displayed in **bold**.
() Standard errors appear in parentheses.
(9) Country deviated from International Defined Population and surveyed adjacent upper grade.
† Met guidelines for sampling participation rates only after replacement schools were included.
[1] National Defined Population covers 90% to 95% of National Target Population.
[2] Country surveyed target grade in the first half of the school year.
An "(s)" indicates that data are available for at least 50% but less than 70% of students.

In all but one country (Croatia), students' experience with participation in community groups or organizations also had consistent and significant positive associations with students' expectations of engaging actively as an adult. On average, one (national) standard deviation was associated with a very small increase in expected active political participation of little more than half a scale score point. Students' civic engagement at school had significant positive net effects on expected active political participation in 15 countries, with similarly small-effect coefficients across countries of less than half a score point per (national) standard deviation.

Table 7.11 shows the results for the prediction of active political participation by variables associated with dispositions toward engagement and beliefs about citizenship and institutions. Students' sense of citizenship self-efficacy was a consistently strong and positive predictor of expected active political participation in all countries; here, a difference of one (national) standard deviation equated to an increase of more than two score points (ranging from 1.6 to 3.5), equivalent to about a fifth of an international standard deviation in the dependent variable. In keeping with our bivariate analyses presented in Chapter 4, students' civic knowledge had significant negative associations in all but two countries with expected active political participation, a finding that was apparent after we controlled for other variables. On average across countries, one (national) standard deviation made for a decrease of more than one scale score point (equivalent to a tenth of an international standard deviation).

Table 7.11: Multiple regression coefficients for expected active political participation (dispositions and perceptions)

Country	Students' dispositions for civic engagement		Students' perceptions	
	Students' sense of citizenship self-efficacy	Students' civic knowledge	Students' perceptions of the importance of conventional citizenship	Students' trust in civic institutions
Belgium (Flemish)	**1.9** (0.2)	**-1.2** (0.2)	**1.4** (0.2)	0.2 (0.3)
Bulgaria	**2.7** (0.3)	**-2.7** (0.3)	**1.7** (0.3)	**1.2** (0.3)
Chile	**2.8** (0.2)	**-1.8** (0.2)	**2.2** (0.3)	**2.1** (0.2)
Chinese Taipei	**2.2** (0.2)	**-1.0** (0.2)	**1.4** (0.2)	**1.0** (0.2)
Colombia	**2.1** (0.2)	**-1.7** (0.2)	**1.6** (0.2)	**2.0** (0.2)
Croatia	**2.0** (0.2)	**-1.1** (0.2)	**2.0** (0.2)	**0.9** (0.2)
Denmark†	**1.6** (0.2)	**-0.3** (0.1)	**1.2** (0.1)	**0.5** (0.1)
Dominican Republic (s)	**2.2** (0.2)	**-1.1** (0.2)	**2.2** (0.2)	**1.8** (0.2)
Estonia[1]	**2.0** (0.2)	**-1.0** (0.2)	**1.9** (0.2)	**0.8** (0.2)
Finland	**2.1** (0.2)	**-0.4** (0.2)	**1.5** (0.2)	0.3 (0.2)
Italy	**2.0** (0.2)	**-0.6** (0.2)	**1.6** (0.2)	**1.2** (0.2)
Latvia[1]	**2.6** (0.2)	**-1.5** (0.2)	**1.2** (0.2)	**1.1** (0.2)
Lithuania	**2.2** (0.2)	**-1.9** (0.2)	**1.4** (0.2)	**1.2** (0.2)
Malta	**3.3** (0.2)	**-1.9** (0.2)	**2.0** (0.2)	**0.7** (0.2)
Mexico	**2.5** (0.2)	**-1.8** (0.2)	**2.5** (0.2)	**2.1** (0.2)
Netherlands†	**2.1** (0.2)	-0.1 (0.2)	**1.4** (0.2)	**0.7** (0.2)
Norway (9)[1]	**2.4** (0.2)	**-1.0** (0.2)	**1.4** (0.1)	**0.4** (0.1)
Peru	**2.2** (0.2)	**-1.9** (0.2)	**1.6** (0.2)	**1.6** (0.2)
Russian Federation	**3.5** (0.4)	**-0.6** (0.2)	**1.8** (0.2)	**1.0** (0.2)
Slovenia	**1.7** (0.2)	**-0.9** (0.2)	**1.4** (0.2)	**1.0** (0.2)
Sweden[1]	**2.2** (0.2)	-0.4 (0.2)	**1.3** (0.3)	**0.6** (0.2)
ICCS 2016 average	**2.3** (0.0)	**-1.2** (0.0)	**1.7** (0.0)	**1.1** (0.0)
Countries not meeting sample participation requirements				
Hong Kong SAR	**3.0** (0.3)	**-0.8** (0.3)	**1.2** (0.3)	**0.9** (0.3)
Korea, Republic of[2]	**0.7** (0.2)	**-2.2** (0.3)	**2.2** (0.3)	**1.4** (0.3)

Notes:
Statistically significant ($p < 0.05$) coefficients are displayed in **bold**.
() Standard errors appear in parentheses.
(9) Country deviated from International Defined Population and surveyed adjacent upper grade.
† Met guidelines for sampling participation rates only after replacement schools were included.
[1] National Defined Population covers 90% to 95% of National Target Population.
[2] Country surveyed target grade in the first half of the school year.
An "(s)" indicates that data are available for at least 50% but less than 70% of students.

These findings suggest that students who expect to be actively involved in political activities in the future are the students most likely to have the higher scores on the citizenship self-efficacy scale, while the students with the higher scores on the civic knowledge scale are the students less inclined to think they will actively engage in politics in the future. These results, which are similar to those reported from ICCS 2009, have implications for what higher levels of learning may lead to with regard to civic engagement because they indicate that students who achieve higher scores on the civic knowledge scale will hold more critical views of the functioning of conventional channels of political participation. These findings definitely warrant further investigation in the future.

Students' beliefs in the importance of adult participation in conventional citizenship such as voting and being informed was another consistently significant, positive predictor of expected active political participation in all countries; on average, the net effect was estimated as 1.7 score points. Students' trust in civic institutions was also positively associated with expected active political participation in all but two countries—Belgium (Flemish) and Finland—with an average net effect of one scale score point. These findings, which are highly similar to those from the previous cycle of ICCS in 2009, suggest that beliefs in the importance of citizen involvement through established channels as well as trust in the functioning of civic institutions have a bearing on whether young people expect to become actively engaged in politics in the future.

References

Amadeo, J., Torney-Purta, J., Lehmann, R., Husfeldt, V., & Nikolova, R. (2002). *Civic knowledge and engagement: An IEA study of upper secondary students in sixteen countries*. Amsterdam, the Netherlands: International Association for the Evaluation of Educational Achievement (IEA).

Bourdieu, P. (1986). The forms of capital. In J. G. Richardson (Ed.), *Handbook of theory and research for the sociology of education* (pp. 241–248). New York, NY: Greenwood Press.

Bronfenbrenner, U. (1979). *The ecology of human development*. Cambridge, MA: Harvard University Press.

Chall, J., & Henry, D. (1991). Reading and civic literacy: Are we literate enough to meet our civic responsibilities? In S. Stotsky (Ed.), *Connecting civic education and language education*. New York, NY: Teachers College Press.

Cohen, J., & Cohen, P. (1975). *Applied multiple regression/correlation analysis for the behavioral sciences*. Hillsdale, NJ: Lawrence Erlbaum Associates.

Coleman, J. S. (1988). Social capital in the creation of human capital. *American Journal of Sociology*, *94*(supplement), 95–120.

Janoski, J., & Wilson, J. (1995). Pathways to voluntarism: Family socialization and status transmission models, *Social Forces*, *74*(1): 271–292.

Knowles, R. T., & Di Stefano, M. (2015). International citizenship education research: An annotated bibliography of research using the IEA ICCS and IEA CIVED datasets. *Journal of International Social Studies*, *5*(2), 86–118.

Knowles, R. T., Torney-Purta, & Barber, C. (2017). *Analyses of IEA civic education databases: A review of findings and opportunities for researchers*. Manuscript submitted for publication.

Lutkus, A. D., & Weiss, A. R. (2007). *The nation's report card: Civics 2006 (NCES 2007-476)*. U.S. Department of Education, National Center for Education Statistics. Washington, DC: U.S. Government Printing Office.

Muthén, L. K., & Muthén, B. O. (2012). *Mplus: Statistical analysis with latent variables. User's guide*. (Version 7). Los Angeles, CA: Muthén & Muthén.

Niemi, R., & Junn, J. (1998). *Civic education: What makes students learn?* New Haven, CT: Yale University Press.

Putnam, R. D. (1993). *Making democracy work*. Princeton, NJ: Princeton University Press.

Quintelier, E. (2008). The effect of internet use on political participation. *Social Science Computer Review*, *20*(10), 1–17.

Raudenbush, S. W., & Bryk, A. S. (2002). *Hierarchical linear models: Applications and data analysis methods*. Newbury Park, CA: Sage Publications.

Rutkowski, D., & Delandshere, G. (2016). Causal inferences with large scale assessment data: Using a validity framework. *Large-scale Assessments in Education*, *4*(6). doi.org/10.1186/s40536-016-0019-1

Rutkowski, L., Gonzalez, E., Joncas, M., & von Davier, M. (2010). International large-scale assessment data: Issues in secondary analysis and reporting. *Educational Researcher*, *39*(2), 142–151.

Schulz, W. (2002). *Explaining differences in civic knowledge: Multilevel regression analyses of student data from 27 countries*. Paper presented at the annual meeting of the American Educational Research Association (AERA), New Orleans, 1–5 April 2002.

Schulz, W., Ainley, J., Fraillon, J., Kerr, D., & Losito, B. (2010). *ICCS 2009 international report: Civic knowledge, attitudes and engagement among lower secondary school students in thirty-eight countries*. Amsterdam, the Netherlands: International Association for the Evaluation of Educational Achievement (IEA).

Schulz, W., Ainley, J., Fraillon, J., Losito, B., & Agrusti, G. (2016). *IEA International Civic and Citizenship Education Study 2016: Assessment framework*. Amsterdam, the Netherlands: International Association for the Evaluation of Educational Achievement (IEA).

Schulz, W., Carstens, R., Losito, B., & Fraillon, J. (Eds.). (forthcoming). *ICCS 2016 technical report*. Amsterdam, the Netherlands: International Association for the Evaluation of Educational Achievement (IEA).

Schulz, W., Fraillon, J., & Ainley, J. (2015). Assessing the intended participation of young adolescents as future citizens: Comparing results from five East Asian countries. In *World Education Research Yearbook 2015* (pp. 74–93). London, UK and New York, NY: Routledge.

Schulz, W., & Friedman, T. (2011). Scaling procedures for ICCS questionnaire items. In W. Schulz, J. Ainley, & J. Fraillon (Eds.), *ICCS 2009 technical report* (pp. 157–259). Amsterdam, the Netherlands: International Association for the Evaluation of Educational Achievement (IEA).

Solhaug, T. (2006). Knowledge and self-efficacy as predictors of political participation and civic attitudes: With relevance for educational practice. *Policy Futures in Education*, *4*(3), 265–278.

Torney, J., Oppenheim, A. N., & Farnen, R. F. (1975). *Civic education in ten countries: An empirical study*. New York, NY: John Wiley and Sons.

Torney-Purta, J., Lehmann, R., Oswald, H., & Schulz, W. (2001). *Citizenship and education in twenty-eight countries*. Amsterdam, the Netherlands: International Association for the Evaluation of Educational Achievement (IEA).

Verba, S., Schlozman, K. L., & Brady, H. E. (1995). *Voice and equality*. Cambridge, MA: Harvard University Press.

Vollebergh, W. A. M., Iedema, J., & Raaijmakers, Q. A. W. (2001). Intergenerational transmission and the formation of cultural orientations in adolescence and young adulthood. *Journal of Marriage and Family*, *63*(4), 1185–1198.