Research Note

A Comparative Profile of 15-Year-Old Students Who Expect to Work in Finance

An Analysis Using PISA 2015 Financial Literacy Data

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Abstract

This analysis compares 15-year-old students who reported career expectations in finance in 13 education systems that participated in the financial literacy assessment of the 2015 Program for International Student Assessment (PISA). In particular, it explores (a) selected demographic characteristics of students who expected to have a career in finance and (b) the association between students' finance career expectations and their financial literacy performance. The results show that, across the participating education systems, 3 percent of 15-year-old students expected to work in finance as adults and 13 percent had at least one parent who worked in finance. The results also identify differences in some education systems in the percentage of students who expected to work in finance by gender or socioeconomic status. In addition, the findings suggest that students' career expectations are not a strong predictor of their financial literacy when accounting for these background characteristics, including students' socioeconomic status.

Theoretical Framework

Students' Career Expectations

Students' career expectations have been found to be highly predictive of their actual career choices and outcomes later in life (Tai, Liu, Maltese, & Fan, 2006; Goyette, 2008; Aschbacher, Ing, & Tsai, 2014). Moreover, the literature shows that students' career expectations are to some extent based on the resources available to them (OECD, 2016), as socioeconomic status (Eshelman & Rottinghaus, 2015), including parental occupation (Pablo-Lerchundi, Morales-Alonso, & González-Tirados, 2015), is associated with career expectations. Other factors, such as gender (Schweitzer, Ng, Lyons, & Kuron, 2011), have also been found to be associated with students' career expectations.

Students' Financial Literacy Skills

The financial sector's significance in the global economy is unquestionable (Herring & Santomero, 1995). In 2015, the financial sector accounted for 20.3 percent of the U.S. gross domestic product (U.S. Bureau of Economic Analysis, 2017). An increase in financial literacy skills can improve financial decisionmaking and positively impact individuals and households (OECD, 2017). With the increasing significance of the financial sector and the recognition of financial literacy as an essential life skill, it is important to compare—in a global context—

students' career expectations in finance and explore their association with students' financial literacy.

Methods and Data Sources

This analysis uses data from the 2015 administration of the Program for International Student Assessment (PISA): data from the student background questionnaire (students' responses to three open-ended questions about their expected occupation at the age of 30 and their mother's and father's occupations) and data from the financial literacy assessment. The three questions from the background questionnaire are listed in table 1.

Table 1. PISA 2015 student background questionnaire items related to occupation

Students' expected occupation	Mother's occupation	Father's occupation
What kind of job do you expect to have when you are about 30 years old?	**The following two questions concern your mother's job:** **(If she is not working now, please tell us her last main job.)**	**The following two questions concern your father's job:** **(If he is not working now, please tell us his last main job.)**
Please type in the job title. _____	What is your **mother's** main job? (e.g., school teacher, kitchen-hand, sales manager) Please type in the job title. _____	What is your **father's** main job? (e.g., school teacher, kitchen-hand, sales manager) Please type in the job title. _____
	What does your **mother** do in her main job? (e.g., teaches high school students, helps the cook prepare meals in a restaurant, manages a sales team) Please use a sentence to describe the kind of work she does or did in that job. _____	What does your **father** do in his main job? (e.g., teaches high school students, helps the cook prepare meals in a restaurant, manages a sales team) Please use a sentence to describe the kind of work he does or did in that job. _____

Using the International Standard Classification of Occupations, 2008 edition (International Labour Office, 2008), students' answers to these questions were classified into four-digit codes. These coded answers were used to create an indicator of finance-related occupations, which includes careers in accounting, banking services, business finance, insurance, and securities and investments, as defined by the National Career Clusters® Framework.[1]

Results are presented at the education system level for the United States and 12 other education systems.[2] Statistical *t* tests and multivariate regression analyses were conducted to compare students' finance career expectations and examine their association with financial literacy performance.

Results

Within each of the 13 participating education systems, 15-year-old students are categorized into two groups based on their responses to the question about career expectations described above in the Methods and Data Sources section: one group of students who expected to work in finance at the age of about 30 and one group of students who expected to work in other professions. This section compares these two groups of students by selected demographic characteristics and explores the association between their finance career expectations and financial literacy performance.

Characteristics of Students Expecting Careers in Finance

Figure 1 provides an overview of the topic of interest across the 13 education systems that participated in the PISA 2015 financial literacy assessment.[3] The *x* axis lists each of the participating education systems; the *y* axis indicates the percentages of students who expected to work in finance as adults in each education system (represented by the dark blue bars) and the percentages of students who had at least one parent working in finance (represented by the light blue bars).

[1] See Appendix for the full list of ISCO-08 codes that are identified as finance careers.

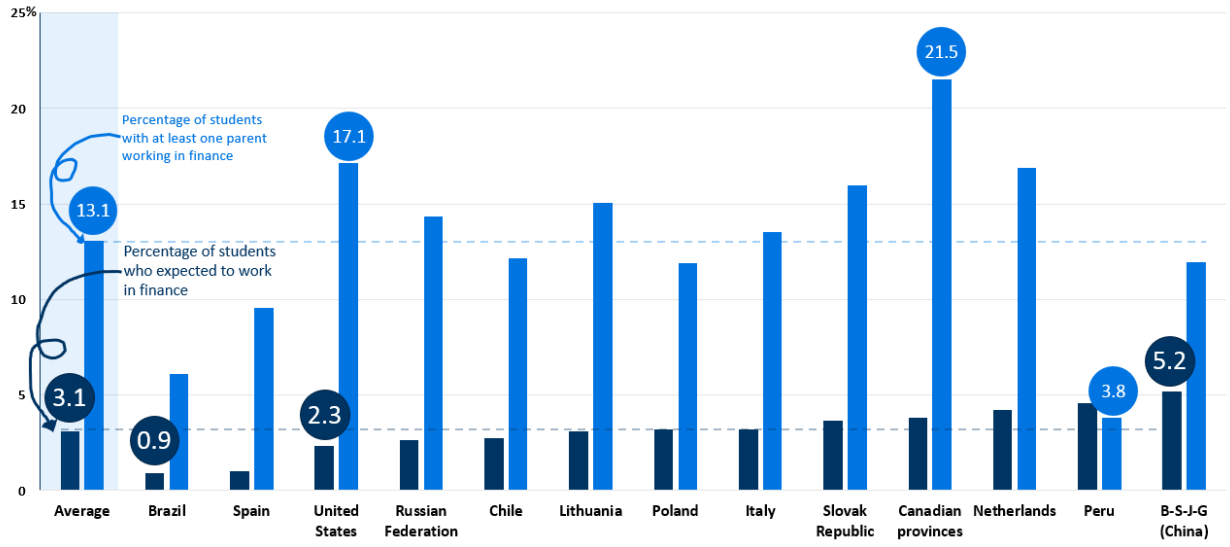
[2] Australia and the Flemish Community of Belgium also participated in the PISA 2015 financial literacy assessment. However, their data are excluded from this analysis because Australia's data are not publicly available, and no students in the Flemish Community of Belgium answered the question about their career expectations. B-S-J-G (China) refers to the four PISA participating Chinese provinces: Beijing, Shanghai, Jiangsu, and Guangdong. The Canadian provinces are the seven provinces that participated in the financial literacy assessment: British Columbia, Manitoba, New Brunswick, Newfoundland and Labrador, Nova Scotia, Ontario, and Prince Edward Island.

[3] Details for each figure in this research note can be found in Appendix.

On average, only 3.1 percent of 15-year-old students across the 13 education systems reported that they expected to work in finance. Some variation was found, with the percentages ranging from 0.9 percent in Brazil to 5.2 percent in B-S-J-G (China); in the United States, 2.3 percent of students expected to work in finance careers.

In addition, on average, 13.1 percent of participating 15-year-old students had at least one parent working in finance. Peru had the lowest percentage (3.8 percent), making it the only education system with a higher percentage of students expecting to work in finance (4.5 percent) than having at least one parent working in finance. The Canadian provinces had the highest percentage of students who had at least one parent working in finance (21.5 percent), followed by the United States (17.1 percent).

Figure 1. Percentage of 15-year-old students who expected to work in finance as adults and percentage of students who had at least one parent working in finance, by education system: 2015



To examine how gender plays a role in 15-year-old students' career expectations in finance, the following figure displays percentages by gender for each education system: to the left is the percentage of female students who expected to work in finance and to the right is the percentage of male students. For each education system, the shaded bar indicates that there was a measurable difference between the percentage of female students and male students who expected to work in finance.

For example, the figure below shows that 7.0 percent of female students in B-S-J-G (China) expected to work in finance, compared with only 3.3 percent of male students.

In six education systems—B-S-J-G (China), Peru, the Slovak Republic, Lithuania, the Russian Federation, and Poland—a higher percentage of female students than male students expected to work in finance. However, in three education systems—the Netherlands, the Canadian provinces, and the United States—a higher percentage of male students than female students expected to work in finance. In the remaining education systems (represented by the unshaded bars), the percentage of female students and male students who expected to work in finance were not measurably different.

Figure 2. Percentage of 15-year-old students who expected to work in finance as adults, by gender and education system: 2015

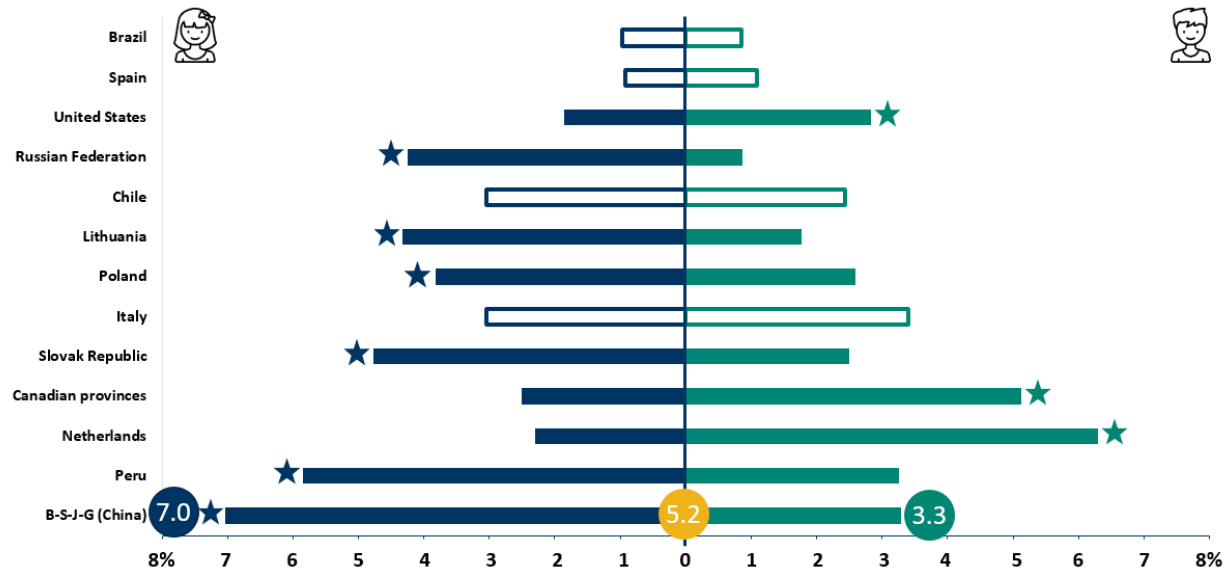
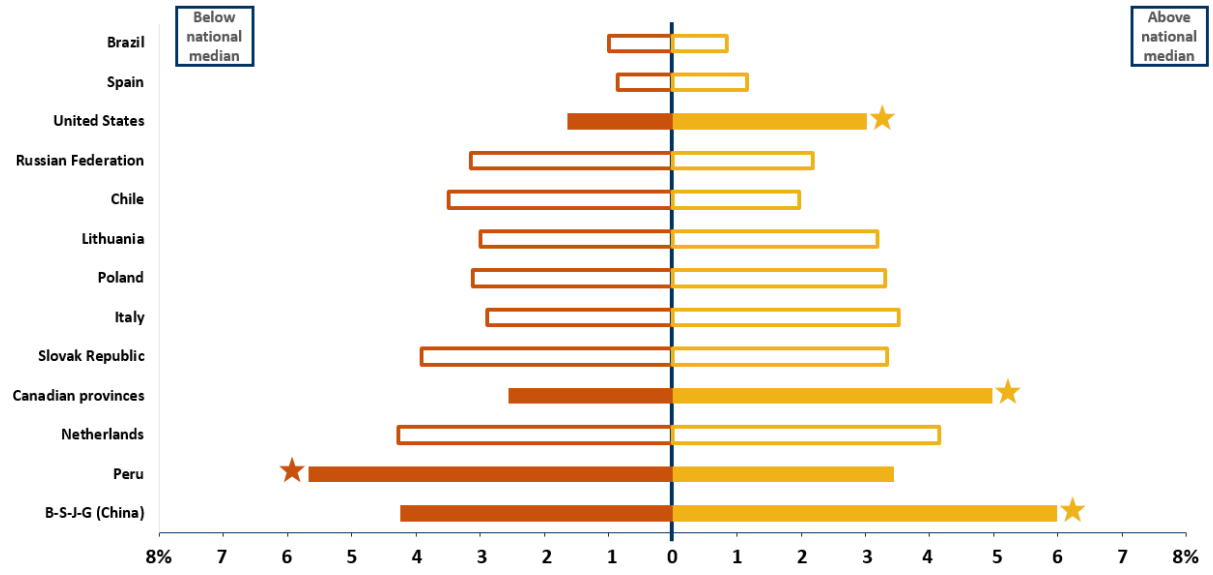


Figure 3 explores differences in the percentage of students who expected to work in finance as an adult by their socioeconomic status. Using a PISA-constructed socioeconomic index4 for each student, the figure shows the percentage of 15-year-old students who expected to work in finance broken down into two groups (students who were below and students who were above the national median) within each education system.

In most participating education systems, there was no measurable difference between these two groups of students, as indicated by the unshaded bars. However, in three education systems—the United States, the Canadian provinces, and B-S-J-G (China)—a higher percentage of students with socioeconomic statuses above the national median expected careers in finance than did students with socioeconomic statuses below the national median. In contrast, in Peru, a higher percentage of students with socioeconomic statuses below the national median expected careers in finance than did students with socioeconomic statuses above the national median.

Figure 3. Percentage of 15-year-old students who expected to work in finance as adults, by students' socioeconomic status and education system: 2015



[4] The Economic, Social and Cultural Status Index in PISA is derived from the following variables administered in the student background questionnaire: highest occupational status of parents, highest educational level of parents in years of education according to ISCED, and students' home possessions. Home possessions include cultural items such as books of classic literature and poetry; textbooks and artwork; a room of their own; and a computer they can use for school or educational software. More information about the PISA-constructed socioeconomic index is available at the PISA 2015 Technical Report.

Association Between Students' Career Expectations in Finance and Their Financial Literacy Performance

To look beyond the percentage distribution of students who expected to work in finance, the analysis explores the association between students' career expectations in finance and their PISA financial literacy performance. Plausibly, higher expectations of a career in finance could be positively associated with better financial literacy performance; however, as figure 4 reveals, this may not always be the case.

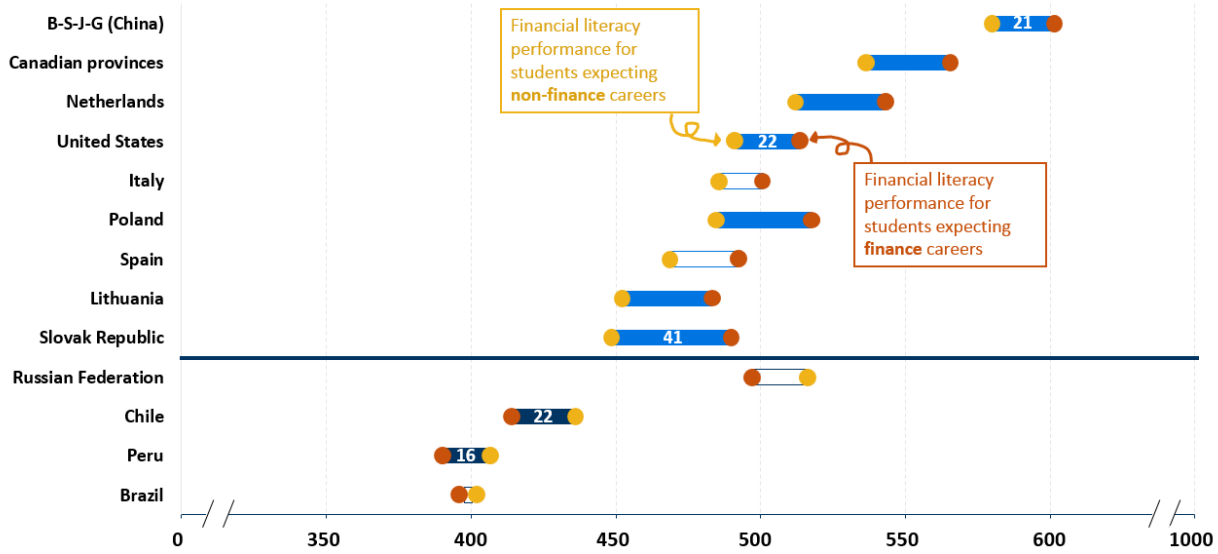
In figure 4, the *x* axis represents the PISA 2015 financial literacy scale, which ranges from 0 to 1,000. Scores below 400 are below proficiency level 2, and scores between 400 and 475 are at proficiency level 2, which is considered the baseline level of proficiency, as defined by the Organization for Economic Cooperation and Development (OECD). Scores at or above 625 are at or above proficiency level 5, which is the top proficiency level.

For each education system, figure 4 shows the average financial literacy scores of students who expected to have a career in finance (represented by the orange dots) and of students who expected to have a career in another field (represented by the yellow dots). The score gaps between these two groups of students either favor those who expected to work in finance (represented by a light blue bar), favor those who expected to work in a nonfinance field (represented by a dark blue bar), or are not statistically significant (represented by a bar that is not shaded).

In seven education systems, including the United States, figure 4 shows that students who expected to work in finance scored higher on the PISA 2015 financial literacy assessment than their peers who expected to work in other fields. The score gap ranged from 21 points in B-S-J-G (China) to 41 points in the Slovak Republic. In the United States, the gap was 22 points.

In contrast, in Peru and Chile, students who expected to work in finance scored lower than their peers who expected to work in other fields, by 16 and 22 points, respectively. In the remaining education systems, the score difference was not measurably different from zero.

Figure 4. PISA financial literacy performance, by 15-year-old students' finance career expectations and education system: 2015



The regression analysis summarized in table 2 provides more detail on the association between students' finance career expectations and their financial literacy performance. In each education system, five regressions were run using the same base model, with students' financial literacy performance as the dependent variable and their expectations to work in finance as the key independent (categorical) variable. The difference between each of the five regression models lies in the number of controls, from no controls at all in the first model to the most controls in the last model. Table 2 reports the coefficients for the key independent variable, with the asterisks denoting the level of statistical significance.

As shown in figure 4, the gaps in financial literacy performance between students who expected to have a career in finance and students who expected to work in a nonfinance field correspond with the coefficients in the first model, where there are no controls. When the analysis controlled for the parental occupation, gender, and socioeconomic status of these students, the gaps in financial literacy performance were not statistically significant in most education systems (the exceptions being the Slovak Republic, the Netherlands, Poland, and Lithuania). Furthermore, in the last model, which added controls for students' PISA 2015 mathematics and reading performance (to control for their broader knowledge and skills), the gaps in financial literacy performance were not statistically significant in any education system.

Table 2. Regression results of 15-year-old students' financial literacy performance as predicted by their finance career expectations and controlling for selected background characteristics, by education system: 2015

$$Financial\ Literacy\ Score = \beta_0 + \boldsymbol{\beta_1}\text{FinanceCareerExpectations} + \beta_i \boldsymbol{Control(s)_i} + \mu$$

	β_1				
		Parental occupation	Student gender Parental occupation	Student socio-economic background Student gender Parental occupation	Student math & reading scores Student socio-economic background Student gender Parental occupation
					$Control(s)_i$
Brazil	-2.869	4.172	3.995	7.473	7.514
Spain	23.18	16.48	16.83	12.75	5.080
United States	22.04*	6.971	6.080	-1.971	6.566
Russian Federation	-18.98	-17.83	-18.36	-16.41	-0.423
Chile	-21.64*	-28.89**	-28.35**	-16.04	1.962
Lithuania	30.97**	24.20**	19.19*	19.69*	2.793
Poland	32.24**	23.95*	23.06*	25.16*	-1.936
Italy	14.79	5.219	5.113	4.694	1.517
Slovak Republic	41.41**	37.41**	34.56**	41.29**	17.49
Canadian provinces	28.63**	20.90*	20.55*	16.21	4.878
Netherlands	30.83**	23.92*	24.07*	27.67**	12.72
Peru	-16.37*	-18.65*	-19.55**	-6.347	-2.476
B-S-J-G (China)	21.29*	17.62	19.99*	15.32	4.922

*** p<0.001, ** p<0.01, * p<0.05

Conclusions and Significance of Research

This analysis contributes to the existing literature by using data from the PISA 2015 financial literacy assessment. The findings provide a cross-national picture of students' career expectations in finance and explore the association between such expectations and financial literacy. The analysis found that, across the 13 participating education systems, 3 percent of 15-year-old students expected to work in finance as adults. The percentage seems low given that 13 percent of the 15-year-old students had at least one parent working in finance.

In some education systems, the analysis also found differences by gender or socioeconomic status in the percentage of students who expected to work in finance. Furthermore, the analysis found that students' career expectations in finance did not correlate with their financial literacy performance in any education system after controls were added for parental occupation, gender, socioeconomic status, and performance in mathematics and reading. Thus, students' career expectations are not a strong predictor of their financial literacy performance when accounting for these background characteristics.

Future research could explore the disparity between the percentage of students who expected to work in finance and the percentage who had parents working in finance. Further research could also focus on identifying other factors that may be associated with students' career expectations in finance and their financial literacy performance.

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Appendix

Introduction to PISA

The Program for International Student Assessment (PISA) is an international assessment that measures 15-year-old students' competencies in a range of domains. It has three main test domains: reading literacy, mathematics literacy, and science literacy. It also has optional cross-curricular domains, such as collaborative problem solving and financial literacy. PISA was first conducted in 2000 and has been administered on a 3-year cycle since then, with the most recent administration in 2018.

In each participating education system, a representative student sample is selected through the sampling design. In addition to the student assessment, the students and their parents, teachers, and school principals complete a survey questionnaire to contextualize the results. More information about PISA and related resources, including the OECD's international reports, assessment frameworks, and international data files, are available at the OECD's website.

Appendix Tables

Finance Careers

Table A-1

ISCO-08 Code	Finance Careers
1211	Finance managers
1346	Financial and insurance services branch managers
2120	Mathematicians, actuaries, and statisticians
2410	Finance professionals
2411	Accountants
2412	Financial and investment advisers
2413	Financial analysts
3310	Financial and mathematical associate professionals
3311	Securities and finance dealers and brokers
3312	Credit and loans officers
3313	Accounting associate professionals
3314	Statistical, mathematical, and related associate professionals
3315	Valuers and loss assessors
3320	Sales and purchasing agents and brokers
3321	Insurance representatives
3322	Commercial sales representatives
3323	Buyers
3324	Trade brokers
3334	Real estate agents and property managers
3339	Business services agents not elsewhere classified
4210	Tellers, money collectors, and related clerks
4211	Bank tellers and related clerks
4213	Pawnbrokers and money lenders
4214	Debt-collectors and related workers
4310	Numerical clerks
4311	Accounting and bookkeeping clerks
4312	Statistical, finance, and insurance clerks
4313	Payroll clerks
4321	Stock clerks

Data Tables

Table A-2 for figure 1

Education system	Percentage of 15-year-old students who expected to work in finance as adults	Percentage of 15-year-old students who had at least one parent working in finance
Average	3.1	13.1
Brazil	0.9	6.1
Spain	1.0	9.5
United States	2.3	17.1
Russian Federation	2.7	14.3
Chile	2.7	12.2
Lithuania	3.1	15.0
Poland	3.2	11.9
Italy	3.2	13.5
Slovak Republic	3.6	16.0
Canadian provinces	3.8	21.5
Netherlands	4.2	16.9
Peru	4.5	3.8
B-S-J-G (China)	5.2	12.0

Table A-3 for figure 2

Education system	Percentage of 15-year-old students					
	Female		Male			
	(1)	(2)	(3)	(4)	(5)	(6)
	Expected to work in non-finance careers	Expected to work in finance careers	Expected to work in non-finance careers	Expected to work in finance careers	Difference between (2) and (4)	P value
B-S-J-G (China)	93.0	7.0	96.7	3.3	3.7	0.00
Peru	94.1	5.9	96.7	3.3	2.6	0.00
Netherlands	97.7	2.3	93.7	6.3	-4.0	0.00
Canadian provinces	97.5	2.5	94.9	5.1	-2.6	0.00
Slovak Republic	95.2	4.8	97.5	2.5	2.3	0.00
Italy	97.0	3.0	96.6	3.4	-0.3	0.56
Poland	96.2	3.8	97.4	2.6	1.2	0.04
Lithuania	95.7	4.3	98.2	1.8	2.5	0.00
Chile	97.0	3.0	97.6	2.4	0.6	0.16
Russian Federation	95.7	4.3	99.1	0.9	3.4	0.00
United States	98.1	1.9	97.2	2.8	-1.0	0.04
Spain	99.1	0.9	98.9	1.1	-0.2	0.51
Brazil	99.0	1.0	99.1	0.9	0.1	0.62

Table A-4 for figure 3

Education system	Percentage of 15-year-old students					
	Below national median socioeconomic status		Above national median socioeconomic status			
	(1)	(2)	(3)	(4)	(5)	(6)
	Expected to work in non-finance careers	Expected to work in finance careers	Expected to work in non-finance careers	Expected to work in finance careers	Difference between (2) and (4)	P value
B-S-J-G (China)	95.8	4.2	94.0	6.0	-1.7	0.02
Peru	94.3	5.7	96.6	3.4	2.2	0.00
Netherlands	95.7	4.3	95.8	4.2	0.1	0.84
Canadian provinces	97.4	2.6	95.0	5.0	-2.4	0.00
Slovak Republic	96.1	3.9	96.7	3.3	0.6	0.40
Italy	97.1	2.9	96.5	3.5	-0.6	0.18
Poland	96.9	3.1	96.7	3.3	-0.2	0.77
Lithuania	97.0	3.0	96.8	3.2	-0.2	0.69
Chile	96.5	3.5	98.0	2.0	1.5	0.05
Russian Federation	96.9	3.1	97.8	2.2	1.0	0.06
United States	98.4	1.6	97.0	3.0	-1.4	0.00
Spain	99.1	0.9	98.8	1.2	-0.3	0.22
Brazil	99.0	1.0	99.2	0.8	0.1	0.50

Table A-5 for figure 4

Education system	(1) Financial literacy performance for students expecting non-finance careers	(2) Financial literacy performance for students expecting finance careers	(5) Difference between (1) and (2)	(6) P value
Brazil	400.5	397.6	-2.9	0.85
Peru	406.9	390.5	-16.4	0.02
Chile	436.0	414.4	-21.6	0.02
Slovak Republic	449.1	490.5	41.4	0.00
Lithuania	452.4	483.4	31.0	0.00
Spain	469.2	492.4	23.2	0.17
Poland	485.3	517.6	32.2	0.00
Italy	486.2	501.0	14.8	0.21
United States	491.6	513.6	22.0	0.05
Netherlands	512.5	543.4	30.8	0.00
Russian Federation	516.2	497.2	-19.0	0.09
Canada	536.9	565.5	28.6	0.01
B-S-J-G (China)	580.1	601.4	21.3	0.05