

**Enrolment in the first stage of early childhood education and students' academic
performance: a cross-country analysis**

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Abstract

Parents have the option of enrolling their children in the first stage of early childhood education (from 0 to 3 years of age). However, not all parents decide to do so, waiting until the second stage of early childhood education to enrol them in the education system (from 3 to 5 years of age), or even until compulsory education when their children are around 6. We intend to analyse the influence of students' enrolment in the first stage of early childhood education on their fourth-grade reading scores. This analysis has been performed using data from the Progress in International Reading Literacy Study (PIRLS) 2011 and 2016 for 39 countries and an instrumental variable approach to go beyond simple correlation. We find that attending the first stage of early childhood education has a positive influence on students' reading scores in 18 countries, whereas it presents a null influence in 16 countries.

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Introduction

Every country has its own education legislation regulating when children must begin compulsory education³, which is so relevant that not enrolling children at that age could be considered illegal. Before the start of compulsory education, these countries give children the opportunity to enrol in early childhood education (ISCED⁴ 0, first stage of early childhood education (FSECE hereinafter) for children between 0 and 3 and second stage of early childhood education for ages 3 to 5). Sometimes, parents decide to take their children to the FSECE in order to meet the child's social and cognitive developmental needs (Robertson, 2007) and prepare him/her for compulsory education, whereas other parents do it to reconcile their professional and family lives (Penn, 2007). This latter argument has become even more relevant due to the incorporation of women to the labour market (Fortin, 2015). Furthermore, there are differences in early school attendance depending on socio-economic status: higher socio-economic status families are more likely to have their children enrolled in early childhood education than those from lower socio-economic status families due to the costs of early schooling (Leseman, 2002; Magnuson & Waldfogel, 2016; Zachrisson & Dearing, 2015), which in consequence is usually subsidised for disadvantaged families (Ertas & Shields, 2012; Simpson & Envy, 2015).

In particular, this research paper focuses on the first ISCED 0 period (i.e. first stage of early childhood education, FSECE), for children between 0 and 3 years of age,

³ Exhibit 2: “Grade Assessed and Average Age of the Students Assessed in PIRLS 2016” indicates starting ages for compulsory education: http://timssandpirls.bc.edu/pirls2016/international-results/wp-content/uploads/structure/PIRLS/0.-about-pirls-2016/0_2_grade-assessed-and-average-age.pdf

⁴ ISCED stands for “International Standard Classification of Education”, which is the reference of international classification for organising education programmes and related qualifications by levels and fields. According to this classification, these levels are: early childhood education (ISCED 0), primary education (ISCED 1), lower secondary education (ISCED 2), upper secondary education (ISCED 3), post-secondary non-tertiary education (ISCED 4), short-cycle tertiary education (ISCED 5), bachelor's or equivalent level (ISCED 6), master's or equivalent level (ISCED 7) and doctoral or equivalent level (ISCED 8)

which is followed by the second stage of early childhood education (ages 3 to 5) and by compulsory education at age 6 (first grade), when primary education begins (ISCED 1). Regarding the first period of ISCED 0 (between 0 and 3), enrolment in this stage of education varies by Organisation for Economic Cooperation and Development (OECD) country; for instance, in 2016, it ranged from an enrolment rate of 1.3% in the Slovak Republic to 56.7% in France (Organisation for Economic Cooperation and Development, 2021). Therefore, it seems that the first stage of early childhood education is not generalised for all students in the OECD and that enrolment rates depend on the country.

Regarding early childhood education, most research studies have pointed towards a positive influence on students' academic performance in subsequent grades. For instance, Ramey et al. (2000) designed an experiment in which students in North Carolina were randomly assigned to a treatment group in which they were enrolled in early childhood education until they were 5 years old, finding that these treated students performed better, and that their mothers had better jobs. A longitudinal analysis performed by Stipek and Byler (2001) for students from the FSECE to third grade in Los Angeles also found a positive influence of enrolment in the FSECE in the first year of compulsory education, but no influence in third grade. In a similar fashion, Fitzpatrick (2008) analysed enrolment in the FSECE for fourth grade students in Georgia, finding that it enhanced students' academic performance between 0.05 and 0.17 *SD* in reading and mathematics. Chang and Singh (2008) and Chang (2012) analysed students in the United States up to fifth grade and found that those who attended the FSECE started with higher reading and mathematics scores than those who did not.

According to authors such as Elder and Lutobsky (2009), the benefits of the FSECE may be due to skills that relatively older students obtained before that level of education. In Nigeria, Osakwe (2009) also found that early childhood education had a

positive influence on the academic performance and social and motor skills of students, whereas Andrews et al. (2012) found that early childhood education was positively associated to academic performance in reading and mathematics and to a lower likelihood of dropping out and using special education services in Texas.

Similar results of early childhood education on students' academic performance were found by Gardinal-Pizato et al. (2012) in Brazil in third, fourth and fifth grades. Hidalgo-Hidalgo and García-Pérez (2012) analysed the influence of attending early childhood education (0 to 5 years of age) on fourth grade Spanish students that took the Trends in International Mathematics and Science Study (TIMSS), finding a higher performance of 3% in reading, mathematics and science. Similar results were found for this same country and grade by González-Betancor and López-Puig (2015) and by Santín and Sicilia (2015) for students in this same grade in Madrid. Cortázar (2015) also highlighted a positive influence of early childhood education on the academic performance of fourth grade Chilean students, with an influence of approximately 0.20 *SD* in reading, mathematics and social sciences, while Datta Gupta and Simonsen (2016) found a similar positive influence on Danish students' academic performance. Authors such as Bakken et al. (2017) analysed students who received high-quality early childhood education and were from socioeconomically disadvantaged backgrounds in the United States, indicating that they obtained better results in reading and mathematics in fourth grade.

Previous meta-analyses also seem to converge on the conclusion of a positive influence of early childhood education. In this sense, Nelson et al. (2003) carried out a meta-analysis of 34 studies, finding an effect size of the FSECE of 0.52 on cognitive outcomes during early childhood education up to eighth grade (in which the effect size was reduced to 0.30). Cooper et al. (2010) also performed a meta-analysis of 40 studies,

finding that completing the FSECE enhanced students' academic performance in 0.25 *SD*, although this influence disappeared in third grade. Similarly, Magnuson et al. (2016) conducted a meta-analysis of 23 studies analysing early childhood education, indicating a positive influence of 0.20 *SD* on students' academic performance.

Within this particular context, this research study focuses on analysing the influence of the first stage of early childhood education on students' reading performance in fourth grade in 39 countries. In particular, we intend to answer the following research question:

Does enrolment in the first stage of early childhood education improve students' reading performance in fourth grade in the 39 countries under analysis?

Specifically, data from the Progress in International Reading Literacy Study (PIRLS) 2011 and 2016 have been employed. Using two cycles of this international large-scale assessment test allows us increase the number of observations with which we can work, hence providing more robust results. In order to go beyond correlation and approach causality, we employ an instrumental variables analysis (using mother's occupation as an instrument), which contrasts with most of the previous studies that have been described above. Therefore, the present research study is novel as (1) it is the first time that the influence of enrolment in FSECE (from 0 to 3 years of age) on students' reading performance has been analysed employing mother's occupation as an instrumental variable to go beyond correlation, (2) for so many countries (39 countries) and (3) for two different cohorts of students.

In particular, mother's occupation may work as an adequate instrument to the extent that it conditions family income, together with the time available for parents to take care of their children when they are young, a task which is usually performed by the mother (Brilli et al., 2016; Chesley, 2017; Christopher, 2012; Merighi et al., 2011). In this

sense, authors such as Gangl and Huber (2022) analysed the influence of mandatory FSECE at 4 years of age in Switzerland, finding a moderate influence on higher mother participation in the labour market. However, in other countries with low maternal labour force participation and a low childcare attendance rate this maternal labour force participation may even be higher (Bauernschuster & Schlotter, 2015, for Germany; Nollenberger & Rodríguez-Planas, 2015, for Spain). As indicated by Sandstrom and Chaudry (2012), most mothers choose the FSECE so that coincides with their job, which highlights the high correlation that both variables could present and shows the potential suitability of mother's occupation as a strong instrument of enrolment in the FSECE (besides other conditions that we will describe in the Methodology section).

The rest of the paper is structured as follows: first, the data under analysis are described, followed by the methodology, the results obtained, their discussion and conclusions.

Data

The data employed in this research paper come from PIRLS, which has been conducted by the International Association for the Evaluation of Educational Achievement (IEA) in 5-year cycles since 2001 (2001, 2006, 2011, 2016 and 2021). The objective of this study is to assess fourth grade students' competences in reading in the participating countries. In the present study, we employ data from PIRLS 2011 and 2016. A total of 48 countries participated in PIRLS 2011 and 50 in PIRLS 2016⁵, having 39 countries in common, which will be analysed in this study⁶.

⁵ Data from PIRLS 2021 have not been employed in order to avoid the influence of the COVID pandemic on the results.

⁶ These 39 countries are: Australia, Austria, Azerbaijan, French-speaking Belgium, Bulgaria, Canada, Chinese Taipei, Czech Republic, Denmark, Finland, France, Georgia, Germany, Hong Kong SAR, Hungary, Islamic Republic of Iran, Ireland, Israel, Italy, Lithuania, Malta, Morocco, Oman, Netherlands, New Zealand, Northern Ireland, Norway, Poland, Portugal, Qatar, Russian Federation, Saudi Arabia, Singapore, Slovak Republic, Slovenia, Spain, Sweden, Trinidad and Tobago and the United Arab Emirates.

Besides the cognitive reading test, students answered a background questionnaire, parents answered a home questionnaire, teachers answered a teacher questionnaire and head teachers answered a school questionnaire. The question of interest is located in the home questionnaire, and parents had to answer “Yes” or “No” to:

-Did your child attend the following before first grade? Early childhood educational program or center for children under age 3.

Appendix 1 shows the percentage of students whose parents indicated that their children were enrolled in the first stage of early childhood education. As can be seen, there are countries in which a higher percentage of students were enrolled in this first stage of education (such as e.g. Norway with 85% or Sweden with 84%) and others in which the percentage of enrolled students was low (e.g. Northern Ireland with 5% and Saudi Arabia with 13%).

The 39 countries chosen for the analysis provided a total sample of 446,027 students who took PIRLS 2011 and 2016 tests. In order to enhance the sample size to the population size, PIRLS requires the use of student weights, jackknife repeated replication weights and five plausible values (Martin & Mullis, 2013; Martin et al., 2017), which have been used in this study. Furthermore, in Appendix 2 we have presented the descriptive statistics of the socio-economic variables by country. We can appreciate that there are high percentages of mothers who never worked for pay in some countries: Azerbaijan (59%), Georgia (32%), Hong-Kong (15%), the Islamic Republic of Iran (75%), Morocco (73%), Oman (60%), Qatar (32%), Saudi Arabia (59%) and United Arab Emirates (34%). As we will see in the Results section, this may show a certain degree of underdevelopment in these countries (to the extent that women do not seem to be fully incorporated to the labour market), which may condition the effectiveness of the FSECE.

Methodology

Ordinary Least Squares

The influence of enrolment in the FSECE on students' academic performance was initially analysed using the following model, which is specified for each one of the $c = 1, \dots, 39$ countries and estimated through ordinary least squares (OLS):

$$S_{ijt} = \alpha + \beta FSECE_{ijt} + \gamma X_{ijt} + \delta F_{ijt} + \varphi PIRLS_t + \varepsilon_{ijt} \quad (1)$$

where i is the individual, j the school and t the year; S_{ijt} are students' standardised scores in reading⁷; $FSECE_{ijt}$ is a dummy variable which presents the value "1" if the student was enrolled in the first stage of early childhood education and "0" otherwise; X_{ijt} are students' background characteristics (i.e. sex, age and reading time at home); F_{ijt} are family characteristics (father's and mother's level of education, father's occupation and number of books at home); $PIRLS_t$ is the PIRLS cycle ($t = 1$ for 2011 and $t = 2$ for 2016); ε_{ijt} is the idiosyncratic error term.

The β coefficient obtained from this model would indicate the influence of attending the FSECE on students' academic performance in reading, once it has been controlled for many observable characteristics. However, there are other potential unobservable variables included in ε_{ijt} , which may have been omitted from this model (for instance students' ability) and might thus bias the β coefficient – this omission is a usual issue when employing cross-sectional data (Cordero & Pedraja, 2019; Hanchane & Mostafa, 2010; Lounkaew, 2013). This issue can be illustrated with the example of student ability: there may be parents who perceive that their child has enough skills and think that they do not need to be enrolled in the FSECE, whereas the opposite case could also happen (parents who think their child has a low level of ability and needs to attend

⁷ These scores have been standardised using the mean and standard deviation of the population to have mean 0 and standard deviation 1 so results can be interpreted as effect sizes, which makes international comparisons easier.

the FSECE). Hence, students' ability is a relevant variable and needs to be controlled in the model, because otherwise, the OLS estimates of β could be biased due to the omission of student ability in the regression. In consequence, to solve this problem we have to move on to a quasi-experimental methodology based on instrumental variables through a two-stage least squares (2SLS) strategy.

Two-stage least squares

Using this methodology requires the identification and use of an instrument (Z_{ijt}), together with other variables (X_{ijt} , F_{ijt} , $PIRLS_t$) to try to control by any potential confounder on the relationship between students' academic performance and enrolment in the FSECE. In particular, the instrument that is going to be used is the mother's occupation when the student is in fourth grade (which has been denoted as Z_{ijt}) and shows the following eleven categories: "has never worked for pay", "small business owner", "clerical worker", "service or sales worker", "skilled agricultural or fishery worker", "craft or trade worker", "plant or machine operator", "general labourers", "corporate manager or senior official", "professional" and "technician or associate professional". This is a categorical variable which is decomposed into eleven binary variables, each one representing a category of the original variable.

This methodology can be properly applied if the chosen instrument satisfies these conditions:

- (a) *Relevance or first stage condition.* According to this condition, the instrument should be strongly associated with the treatment variable ($FSECE_{ijt}$). This high correlation occurs in the present study, to the extent that enrolment in the FSECE is strongly linked to the mother's occupation in fourth grade (Z_{ijt}). This is because the mother's occupation may condition family income, together with the time that

is available for parents to take care of their children when they are young, a task which is usually performed by the mother (Chesley, 2017; Christopher, 2012; Merighi et al., 2011). Therefore, depending on the mother's occupation, the family may have to enrol their child in the FSECE or not. We will see whether this condition is satisfied more deeply in our data when using the Stock and Yogo (2005) test of weak instruments in the results section below⁸.

(b) *Independence/exogeneity assumption*. This condition specifies that the instrument has to be randomly assigned or “as good as randomly assigned”, which means that it is uncorrelated (i.e. it is exogenous/independent) to the omitted variables for which we might want to control; otherwise, it would be an endogenous variable, which could bias the coefficient and significance of the $FSECE_{ijt}$ variable even more. In this research study, mother's occupation could be considered as good as randomly assigned after controlling by X_{ijt} , F_{ijt} and $PIRLS_t$, to the extent that mother's education (which is included in F_{ijt}) would be controlling by the influence of mother's human capital, leaving for the instrument the mother's exogenous personal decision of whether to take her children to the FSECE or not conditioned on her labour situation.

(c) *Exclusion restriction*. This restriction indicates that there is a unique channel (i.e. through $FSECE_{ijt}$) for the influence of the instrument (mother's occupation, Z_{ijt}) on the dependent variable (students' standardised reading scores, C_{ijt}). This single channel requires that the independence assumption be fulfilled, as other potential channels for this influence have been controlled for when this

⁸ Father's occupation in fourth grade has also been employed as instrument in a robustness check, finding that it does not follow the relevance condition. The reason for this result may be that care work is usually performed by the mother, as previously indicated. These estimations will be provided upon request to the authors.

assumption is followed; hence, the exclusion restriction is satisfied in our research study when controlling by X_{ijt} , F_{ijt} and $PIRLS_t$.

(d) *Monotonicity property*. This property is also known as the *no defiers assumption*, meaning that there are no students who decide not to attend the FSECE whenever their parents decide to enrol them and, similarly, there are no students whose parents decide not to enrol them but who always decide to attend anyway. In our data this monotonicity is always fulfilled, to the extent that students are very young when their parents have to make the decision of enrolling them in the FSECE, and thus are unable to decide otherwise.

Once the instrument has been identified and checked, equation (1) can be estimated by two-stage least squares (2SLS). Beginning with the *first stage*:

$$FSECE_{ijt} = \pi_0 + \pi_1 Z_{ijt} + \pi_2 X_{ijt} + \pi_3 F_{ijt} + \pi_4 PIRLS_t + \omega_{ijt} \quad (2)$$

ω_{ijt} being the idiosyncratic error term. After estimating this equation, a prediction of the dependent variable of enrolment in the FSECE is obtained (\widehat{FSECE}_{ijt}). This prediction will be used in the model defined by equation (1) in the place of $FSECE_{ijt}$, obtaining the *reduced form* (i.e. hereinafter our base model):

$$S_{ijt} = \alpha + \beta \widehat{FSECE}_{ijt} + \gamma X_{ijt} + \delta F_{ijt} + \varphi PIRLS_t + \varepsilon_{ijt} \quad (3)$$

In this model, β is the influence of enrolment in the FSECE on students' academic performance in reading, which should not be biased by the issues indicated previously. However, we are still cautious and interpret our results as conditional associations and not as causal ones.

Results

First, we begin our analysis by estimating the model in equation (1) by OLS, presenting the results in Table 1 (complete estimations are available in Table S1 in the

Online Supplemental Material). Interestingly, the coefficients obtained for enrolment in the FSECE present an influence on students' reading scores ranging from 0.12 negative *SD* in Netherlands to 0.16 positive *SD* in Israel. As we can see, positive coefficients are quite moderate and resemble those found in the revised literature, but we also obtain negative coefficients, something that – to the best of our knowledge – has not been remarked in prior research studies. As previously indicated, all these coefficients may be biased, to the extent that there are omitted variables which have not been controlled for. Therefore, we move on to our 2SLS estimations.

-Insert Table 1-

These 2SLS estimations are presented in Table 2 (complete estimations are available in Table S2 in the Online Supplemental Material). First, we have to analyse the results of the Stock and Yogo (2005) test of weak instruments, whose null hypothesis is that the instrument is weak. We can see that the null hypothesis is accepted in French-speaking Belgium, Canada, France, Ireland and Northern Ireland. Thus, we must be cautious and do not consider the FSECE coefficient for these countries, to the extent that the instrument does not seem to condition parents' decision regarding enrolment in this early stage of education. This may be due to the fact that these countries present the highest costs of attending the FSECE in the OECD (Organisation for Economic Cooperation and Development, 2020): in Ireland and Canada, it costs almost 35% of mothers' full-time earnings, while in France and Belgium this cost is around 20%⁹.

⁹ In spite of the high costs, it is striking that enrolment in the FSECE in French-speaking Belgium and France is pretty high (according to Appendix 1, 77% and 60% of children are enrolled in this stage of education, respectively), whereas this percentage was lower in Canada (26.05%), Ireland (22.9%) and Northern Ireland (4.86%). Interestingly, these figures are also reflected in the percentage of students whose mothers never worked for pay and were enrolled in the FSECE in our database (66% in French-speaking Belgium, 48%

Hence, this may exclude all kinds of families in the socio-economic spectrum from enrolling their children in this early stage of education. In addition, the high costs of the FSECE also reduce women's incentives to work (especially in Canada and Ireland) and encourage them to devote more time to childcare (Organisation for Economic Cooperation and Development, 2020). Therefore, mother's occupation does not seem to be a determinant variable for the decision of enrolling children in the FSECE in these countries due to its excessive pecuniary costs, which might thus reduce its correlation with the FSECE variable, thereby weakening the instrument. The robustness of these conclusions is reinforced by the fact that the instrument is weak in both Ireland and Northern Ireland, showing that this is not a spurious result and that, in fact, the characteristics of the FSECE in this country may be reducing the correlation between enrolment in this early stage of education and the instrument.

-Insert Table 2-

Regarding those countries in which the instrument seems to be strong, the influence of enrolment in the FSECE is null in 14 countries (Australia, Azerbaijan, Bulgaria, Georgia, the Islamic Republic of Iran, Malta, Morocco, Netherlands, Norway, Poland, Portugal, Qatar, Saudi Arabia and Trinidad and Tobago). There are two countries in which this influence is negative (Hong Kong SAR and Oman), but their coefficients are only significant at 10%, so it may be considered as a null influence. The reason for this null influence might be mixed: on one hand, most of the countries with a null

in France, 21% in Ireland, 20% in Canada and 3% in Northern Ireland), showing a clear difference between French-speaking Belgium and France on one hand and Canada, Ireland and Northern Ireland on the other, i.e., in spite of the high costs, even mothers who never worked before can afford it. The most likely explanation is that in both French-speaking Belgium and France the FSECE is a free or low-cost public service, as indicated in Organisation for Economic Cooperation and Development (2020).

influence belong to the group of developing economies (i.e. Azerbaijan, Bulgaria, Georgia, the Islamic Republic of Iran, Morocco, Oman, Poland, Qatar, Saudi Arabia and Trinidad and Tobago), which may show that these countries still need certain development in their education systems to provide effective FSECE. Interestingly, this degree in development might also be reflected in the high percentages of mothers who never worked for pay in most of these countries, as previously indicated in the Data section. On the other hand, the null influence of the FSECE for developed countries such as Hong Kong SAR, Malta, Netherlands, Norway and Portugal may show that the first stage of early childhood education would need to be improved in order to boost students' ulterior academic performance. The literature has highlighted the fact that early childhood education may not have an influence later in primary education (Barnett, 1995; Bassok et al., 2015; Li et al., 2020). This convergence in primary school of the academic and cognitive skills of children attending the FSECE and those who did not is often denoted as preschool "fadeout" or control group "catch-up". According to Jenkins et al. (2018), one plausible explanation could be that the influence of early childhood education only persists as long as children in primary school learn new material at the same or a faster rate than the children who have not had any early childhood education learn new material. While new material becomes increasingly complex in the early school years, requiring additional cognitive skills and efforts, this advantage may be hard to sustain. These authors also indicate that another explanation could be that low-quality schools do not serve the instructional needs of children properly. Therefore, children's skills could stagnate at a low quality level, and the early childhood education impacts may not last long. In this sense, schools with fewer resources, poorly managed classrooms, and the distractions of dangerous conditions could hinder students' ability to sustain learning gains (Lee & Loeb, 1995). The opposite of this argument may also happen, i.e. high-

quality schools may help students who did not attend early childhood education catch-up with those who did (Jenkins et al., 2018).

Furthermore, there are 18 countries in which the instrument is strong and enrolment in the FSECE presents a positive influence (Austria, Chinese Taipei, Czech Republic, Denmark, Finland, Germany, Hungary, Israel, Italy, Lithuania, New Zealand, Russian Federation, Singapore, Slovak Republic, Slovenia, Spain, Sweden and United Arab Emirates), ranging from 0.64 *SD* to 3.13 *SD*. Therefore, it seems that this stage of education may enhance students' academic achievement in these countries.

Discussion and conclusions

This research study has analysed the influence of enrolment in the FSECE on fourth grade students' reading performance in 39 countries. For this purpose, PIRLS data have been employed, combined with an instrumental variable approach in order to get as close as possible to causal estimations. Our results have shown that enrolment in the FSECE has a positive influence on students' reading scores in 18 countries, as found in most of the literature (Andrews et al., 2012; Bakkenet al., 2017; Cortázar, 2015; Datta Gupta & Simonsen, 2016; Elder & Lutobsky, 2009; Fitzpatrick, 2008; Gardinal-Pizato et al., 2012; González-Betancor & López-Puig, 2015; Hidalgo-Hidalgo & García-Pérez, 2012; Osakwe, 2009; Santín & Sicilia, 2015; Stipek & Byler, 2001), although with average higher effect sizes than those found in previous literature, whereas it presents a null influence in 16 countries.

These results show that, for those countries in which enrolment in the FSECE is positive, fostering public funding for this stage of early education may be positive to facilitate children' access. This is because subsidising the first stage of early childhood education may specially help those families that cannot afford its cost. Moreover, increasing the accessibility to the first stage of early childhood education may not only

improve students' reading performance, but may also provide more equality of opportunities for those students who come from more disadvantaged socio-economic backgrounds, who may have more difficulties to access the first stage of early childhood education if it is not publicly funded. In addition, for those students who did not attend the first stage of early childhood education, compensation programmes with similar contents to those taught at this level of education may be useful, so that they can also benefit from its positive influence. Regarding those developing countries in which enrolment in the FSECE seems to have a null influence, they may need to identify those characteristics that differentiate their first stage of early childhood education from that in the countries with a positive influence, in order to reproduce the latter's successful practices.

It is also relevant to highlight that differences in the influence of the FSECE on students' reading competences may be motivated by differences present across countries. As indicated by Brodin et al. (2015), for instance, in Austria the curriculum stresses some topics such as e.g. child development, ethics, communication, art and creativity, nature and technology, whereas in Bulgaria the curriculum is based on the State educational requirements, focusing on the Bulgarian language, mathematics, social aspects, nature, art, and learning by play. In Sweden, early childhood education schools have the same status as other schools and present goal-based processes, with a curriculum based on play, learning, interaction and participation.

Furthermore, it is important to highlight that educational opportunities and resources outside the FSECE, such as the family environment (Pinto et al., 2013; e.g., shared book reading with parents; Schapira, & Aram, 2020; Wirth et al., 2020) and extracurricular activities (Ren & Zhang, 2020) may present substantial differences between the countries participating in PIRLS and that they could have an influence on

children's reading competence over and above the influence of the FSECE. In addition, differentiating between education-focused and care-focused provision across different countries could be an interesting factor to explain much of the variation in reading performance; unfortunately, this information is not available in PIRLS. Therefore, the analysis of these topics could also be relevant for future research.

This research study presents some limitations. First, although we go beyond correlation by the use of an instrumental variable approach, there may be some unobservables for which we were not able to control, so we are cautious in the interpretation of our results. Second, the instrument (i.e. mother's occupation) is measured when the students were in fourth grade, although it would be better to have it when the age of students corresponded with the FSECE. Third, there are five countries in which the instrument did not seem to be relevant due to the low correlation of mother's occupation with enrolment in the FSECE, hence indicating that families in these countries may give more weight to other variables when choosing to enrol their children in this stage of early education. Fourth, although our sample contains 39 countries and PIRLS recommended practices (i.e. student weights, jackknife repeated replication weights and five plausible values) allow obtaining representative results, a large proportion of the world's children are not included in PIRLS, so our results should be treated with caution when generalising for a worldwide perspective.

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Appendix

-Insert Appendix 1-

-Insert Appendix 2-

Table 1. Influence of attendance to the FSECE on fourth grade students' reading scores, ordinary least squares

Variables	Australia	Austria	Azerbaijan	French-speaking Belgium	Bulgaria	Canada	Chinese Taipei	Czech Republic	Denmark	Finland
Attendance to the FSECE (ref.: no)										
Yes	-0.050 (0.031)	-0.025 (0.022)	-0.075** (0.030)	0.116*** (0.043)	-0.042 (0.026)	0.032* (0.018)	0.028 (0.022)	0.008 (0.032)	0.026 (0.026)	-0.056** (0.023)
Additional controls	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Observations	12,467	9,030	10,875	8,350	9,542	41,451	8,619	10,093	8,102	9,536
R-squared	0.213	0.294	0.129	0.277	0.379	0.186	0.216	0.246	0.215	0.250

Variables	France	Georgia	Germany	Hong Kong SAR	Hungary	Islamic Republic of Iran	Ireland	Israel	Italy	Lithuania
Attendance to the FSECE (ref.: no)										
Yes	0.053* (0.030)	-0.048* (0.025)	0.083*** (0.025)	-0.079*** (0.027)	0.138*** (0.028)	-0.052 (0.038)	-0.111*** (0.031)	0.160*** (0.028)	0.034 (0.023)	0.012 (0.027)
Additional controls	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Observations	9,205	10,537	7,959	7,224	9,827	10,143	9,131	8,227	8,129	8,978
R-squared	0.265	0.238	0.273	0.093	0.383	0.285	0.284	0.307	0.210	0.267

Variables	Malta	Morocco	Oman	Netherlands	New Zealand	Northern Ireland	Norway	Poland	Portugal	Qatar
Attendance to the FSECE (ref.: no)										
Yes	-0.041 (0.032)	0.028 (0.025)	-0.004 (0.029)	-0.122*** (0.042)	-0.035 (0.024)	0.059 (0.102)	-0.001 (0.043)	0.015 (0.033)	-0.038 (0.024)	0.012 (0.021)
Additional controls	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Observations	7,245	13,294	19,628	8,201	11,290	7,279	7,544	9,418	8,727	13,197
R-squared	0.222	0.210	0.250	0.165	0.267	0.224	0.216	0.248	0.191	0.307

Variables	Russian Federation	Saudi Arabia	Singapore	Slovak Republic	Slovenia	Spain	Sweden	Trinidad and Tobago	United Arab Emirates
Attendance to the FSECE (ref.: no)									
Yes	0.043* (0.023)	0.031 (0.039)	0.115*** (0.015)	0.025 (0.028)	0.040 (0.027)	0.072*** (0.020)	0.066** (0.032)	-0.071** (0.028)	0.015 (0.014)
Additional controls	✓	✓	✓	✓	✓	✓	✓	✓	✓
Observations	9,038	9,248	12,855	11,081	9,011	23,175	9,147	8,125	31,089
R-squared	0.225	0.204	0.312	0.381	0.262	0.188	0.247	0.267	0.314

Notes: Standard errors are in parenthesis and PIRLS recommended practices have been applied. The thick (✓) indicates that it has been controlled by sex of the student, level of education of the father, level of education of the mother, occupation of the father, occupation of the mother, books at home, time reading at home and PIRLS cycle. FSECE = First Stage of Early Childhood Education; PIRLS = Progress in International Reading Literacy Study. Complete estimations are presented in Table S1 (Online Supplemental Material).

Estimation method: Ordinary Least Squares (OLS).

Dependent variable: Students' standardised scores in reading.

Coefficient: *** significant at 1%, ** significant at 5%, * significant at 10%.

Source: Authors' own calculations.

Table 2. Influence of attendance to the FSECE on fourth grade students' reading scores, instrumental variables

Variables	Australia	Austria	Azerbaijan	French-speaking Belgium	Bulgaria	Canada	Chinese Taipei	Czech Republic	Denmark	Finland
Attendance to the FSECE (ref.: no)										
Yes	0.054 (0.705)	0.820*** (0.301)	-0.117 (0.813)	0.666 (3.242)	0.698 (0.529)	1.477 (1.451)	0.638* (0.346)	2.405** (0.946)	3.125*** (0.874)	0.378** (0.168)
Additional controls	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Observations	12,467	9,030	10,875	8,350	9,542	41,451	8,619	10,093	8,102	9,536
Stock and Yogo (2005) test of weak instruments	1.666**	9.381***	4.010***	0.625	3.110***	0.978	4.476***	2.854***	2.516***	14.579***

Variables	France	Georgia	Germany	Hong Kong SAR	Hungary	Islamic Republic of Iran	Ireland	Israel	Italy	Lithuania
Attendance to the FSECE (ref.: no)										
Yes	3.410** (1.605)	-0.092 (0.485)	1.822*** (0.448)	-0.854* (0.471)	1.959*** (0.408)	0.506 (0.327)	0.996 (1.534)	1.769*** (0.236)	1.570*** (0.312)	1.678*** (0.552)
Additional controls	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Observations	9,205	10,537	7,959	7,224	9,827	10,143	9,131	8,227	8,129	8,978
Stock and Yogo (2005) test of weak instruments	0.916	3.668***	3.644***	3.735***	5.786***	6.155***	1.357	12.890***	8.124***	3.118***

Variables	Malta	Morocco	Oman	Netherlands	New Zealand	Norway	Northern Ireland	Poland	Portugal	Qatar
Attendance to the FSECE (ref.: no)										
Yes	1.092 (1.053)	1.009 (0.628)	-0.898* (0.505)	0.078 (0.854)	0.749** (0.301)	0.311 (0.477)	2.249 (6.134)	0.144 (0.302)	1.462 (0.939)	0.322 (0.279)
Additional controls	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Observations	7,245	13,294	19,628	8,201	11,290	7,544	7,279	9,418	8,727	13,197
Stock and Yogo (2005) test of weak instruments	2.239***	2.947***	6.703***	1.988**	3.940***	3.062***	0.851	9.944***	1.776**	7.625***

Variables	Russian Federation	Saudi Arabia	Singapore	Slovak Republic	Slovenia	Spain	Sweden	Trinidad and Tobago	United Arab Emirates
Attendance to the FSECE (ref.: no)									
Yes	1.272*** (0.340)	-0.000 (0.893)	1.543*** (0.344)	1.439*** (0.538)	1.135** (0.431)	1.426** (0.585)	1.088*** (0.364)	-1.069 (1.012)	1.045** (0.397)
Additional controls	✓	✓	✓	✓	✓	✓	✓	✓	✓
Observations	9,038	9,248	12,855	11,081	9,011	23,175	9,147	8,125	31,089
Stock and Yogo (2005) test of weak instruments	6.704***	2.369***	4.220***	4.499***	4.189***	3.411***	6.809***	1.820**	8.139***

Notes: Standard errors are in parenthesis and PIRLS recommended practices have been applied. The thick (✓) indicates that it has been controlled by sex of the student, level of education of the father, level of education of the mother, occupation of the father, occupation of the mother, books at home, time reading at home and PIRLS cycle. FSECE = First Stage of Early Childhood Education; PIRLS = Progress in International Reading Literacy Study. Complete estimations are presented in Table S2 (Online Supplemental Material).

Estimation method: Two-Stage Least Squares (2SLS). The instrument is mother's occupation. The null hypothesis of the Stock and Yogo (2005) test of weak instruments is that the instrument is weak.

Dependent variable: Students' standardised scores in reading.

Coefficient: *** significant at 1%, ** significant at 5%, * significant at 10%.
Source: Authors' own calculations.

Appendix 1. Percentage of students who attended the FSECE

	Percentage of students that attended the FSECE
Australia	32.93
Austria	58.40
Azerbaijan	17.20
French-speaking Belgium	77.00
Bulgaria	63.53
Canada	26.05
Chinese Taipei	33.97
Czech Republic	37.94
Denmark	73.90
Finland	52.15
France	60.00
Georgia	55.69
Germany	53.57
Hong Kong SAR	60.81
Hungary	67.28
Islamic Republic of Iran	19.53
Ireland	22.90
Israel	69.05
Italy	62.54
Lithuania	65.04
Malta	26.02
Morocco	29.94
Oman	17.35
Netherlands	50.42
New Zealand	51.11
Northern Ireland	4.86
Norway	85.54
Poland	28.18
Portugal	54.15
Qatar	29.95
Russian Federation	68.65
Saudi Arabia	12.49
Singapore	59.92
Slovak Republic	41.81
Slovenia	69.43
Spain	72.00
Sweden	83.91
Trinidad and Tobago	38.27
United Arab Emirates	26.38

Notes: PIRLS recommended practices have been applied. FSECE = First Stage of Early Childhood Education; PIRLS = Progress in International Reading Literacy Study.

Source: Authors' own calculations.

Appendix 2. Descriptive statistics of the socio-economic variables by country

Variables		Australia	Austria	Azerbaijan	French-speaking Belgium	Bulgaria	Canada	Chinese Taipei	Czech Republic	Denmark	Finland
Standardised reading scores		0.32	0.16	0.12	0.18	0.17	0.19	0.11	0.14	0.15	0.11
Sex of the student	Male	0.49	0.51	0.53	0.53	0.51	0.49	0.52	0.50	0.49	0.50
	Female	0.51	0.49	0.47	0.47	0.49	0.51	0.48	0.50	0.51	0.50
Student age		10.03	10.23	10.13	9.98	10.73	9.89	10.18	10.32	10.80	10.78
Level of education of the father	Did not go to school	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00
	ISCED 1	0.00	0.00	0.02	0.05	0.04	0.00	0.02	0.00	0.02	0.00
	ISCED 2	0.09	0.05	0.11	0.15	0.12	0.03	0.12	0.02	0.07	0.07
	ISCED 3	0.14	0.57	0.42	0.25	0.37	0.18	0.37	0.71	0.13	0.36
	ISCED 4	0.24	0.01	0.12	0.13	0.21	0.21	0.20	0.03	0.05	0.05
	ISCED 5	0.15	0.16	0.08	0.00	0.03	0.15	0.01	0.01	0.24	0.18
Level of education of the mother	ISCED 6	0.37	0.20	0.24	0.41	0.22	0.41	0.28	0.22	0.49	0.33
	Did not go to school	0.00	0.00	0.01	0.01	0.02	0.00	0.00	0.00	0.00	0.00
	ISCED 1	0.00	0.01	0.04	0.04	0.06	0.01	0.03	0.00	0.01	0.00
	ISCED 2	0.05	0.06	0.14	0.13	0.11	0.03	0.09	0.03	0.04	0.04
	ISCED 3	0.17	0.55	0.39	0.21	0.29	0.18	0.40	0.65	0.11	0.28
	ISCED 4	0.15	0.07	0.10	0.09	0.12	0.25	0.23	0.07	0.05	0.04
Occupation of the father	ISCED 5	0.18	0.14	0.11	0.00	0.04	0.14	0.02	0.03	0.24	0.24
	ISCED 6	0.45	0.17	0.21	0.53	0.36	0.39	0.23	0.21	0.54	0.41
	Has never worked for pay	0.00	0.00	0.13	0.00	0.02	0.01	0.01	0.00	0.00	0.00
	Small business owner	0.16	0.14	0.15	0.17	0.14	0.12	0.14	0.17	0.11	0.14
	Clerical worker	0.01	0.17	0.04	0.09	0.02	0.07	0.05	0.03	0.03	0.04
	Service or sales worker	0.06	0.10	0.07	0.10	0.13	0.09	0.10	0.07	0.07	0.10
	Skilled agricultural or fishery worker	0.03	0.03	0.08	0.01	0.05	0.01	0.04	0.02	0.03	0.03
	Craft or trade worker	0.15	0.18	0.20	0.17	0.22	0.08	0.17	0.23	0.15	0.14
	Plant or machine operator	0.06	0.06	0.07	0.11	0.12	0.06	0.12	0.15	0.07	0.12
	General laborers	0.05	0.03	0.08	0.03	0.10	0.05	0.03	0.01	0.02	0.03
Occupation of the mother	Corporate manager or senior official	0.15	0.12	0.06	0.09	0.05	0.11	0.15	0.12	0.11	0.11
	Professional	0.25	0.08	0.08	0.18	0.14	0.29	0.15	0.10	0.22	0.26
	Technician or associate professional	0.07	0.07	0.03	0.05	0.02	0.11	0.05	0.11	0.19	0.03
	Has never worked for pay	0.02	0.03	0.59	0.05	0.05	0.02	0.05	0.01	0.01	0.01
	Small business owner	0.10	0.07	0.03	0.07	0.09	0.10	0.12	0.10	0.04	0.06
	Clerical worker	0.17	0.33	0.05	0.22	0.09	0.10	0.21	0.23	0.17	0.14
	Service or sales worker	0.13	0.26	0.03	0.17	0.20	0.11	0.16	0.19	0.16	0.20
	Skilled agricultural or fishery worker	0.00	0.03	0.03	0.00	0.03	0.01	0.02	0.01	0.01	0.01
	Craft or trade worker	0.02	0.02	0.01	0.04	0.04	0.07	0.02	0.07	0.01	0.01
	Plant or machine operator	0.00	0.01	0.00	0.01	0.08	0.05	0.10	0.06	0.01	0.02
General laborers	0.03	0.08	0.04	0.09	0.12	0.05	0.03	0.04	0.02	0.06	
Corporate manager or senior official	0.06	0.02	0.02	0.05	0.05	0.09	0.05	0.06	0.04	0.04	
Professional	0.36	0.12	0.17	0.26	0.18	0.28	0.14	0.16	0.22	0.41	
Technician or associate professional	0.10	0.03	0.04	0.05	0.07	0.12	0.09	0.09	0.31	0.03	

Books at home	0-10	0.04	0.05	0.33	0.10	0.17	0.07	0.16	0.05	0.05	0.05
	11-25	0.09	0.13	0.34	0.15	0.15	0.14	0.21	0.11	0.10	0.12
	26-100	0.30	0.33	0.23	0.32	0.35	0.35	0.34	0.38	0.29	0.35
	101-200	0.21	0.20	0.05	0.18	0.15	0.19	0.12	0.20	0.21	0.21
	More than 200	0.36	0.30	0.05	0.26	0.17	0.24	0.16	0.27	0.34	0.27
Time Reading at home	Less than one hr a week	0.39	0.35	0.38	0.38	0.30	0.44	0.45	0.36	0.53	0.43
	1-5 hr a week	0.39	0.38	0.28	0.38	0.41	0.39	0.36	0.44	0.38	0.40
	6-10 hr a week	0.11	0.13	0.19	0.13	0.19	0.09	0.11	0.13	0.06	0.11
	More than 10 hr a week	0.10	0.13	0.15	0.11	0.11	0.08	0.09	0.08	0.03	0.06

Appendix 2. Descriptive statistics of the socio-economic variables by country (continued)

Variables		France	Georgia	Germany	Hong Kong SAR	Hungary	Islamic Republic of Iran	Ireland	Israel	Italy	Lithuania
Standardised reading scores		0.17	0.17	0.24	0.06	0.23	0.16	0.21	0.31	0.15	0.19
Sex of the student	Male	0.50	0.50	0.49	0.52	0.50	0.52	0.50	0.48	0.49	0.51
	Female	0.50	0.50	0.51	0.48	0.50	0.48	0.50	0.52	0.51	0.49
Student age		9.82	9.85	10.28	9.99	10.59	10.13	10.41	10.02	9.73	10.74
Level of education of the father	Did not go to school	0.01	0.00	0.01	0.00	0.00	0.04	0.00	0.00	0.00	0.00
	ISCED 1	0.04	0.01	0.03	0.11	0.07	0.22	0.04	0.02	0.02	0.01
	ISCED 2	0.08	0.06	0.23	0.22	0.25	0.24	0.12	0.04	0.33	0.07
	ISCED 3	0.46	0.22	0.22	0.32	0.34	0.25	0.15	0.28	0.41	0.23
	ISCED 4	0.01	0.15	0.00	0.03	0.05	0.02	0.11	0.02	0.06	0.27
	ISCED 5	0.16	0.20	0.23	0.07	0.03	0.05	0.23	0.20	0.03	0.11
Level of education of the mother	Did not go to school	0.01	0.00	0.01	0.00	0.00	0.07	0.00	0.00	0.00	0.00
	ISCED 1	0.03	0.01	0.02	0.10	0.07	0.28	0.03	0.01	0.01	0.00
	ISCED 2	0.05	0.07	0.25	0.21	0.16	0.20	0.10	0.02	0.23	0.05
	ISCED 3	0.39	0.18	0.28	0.37	0.30	0.22	0.15	0.23	0.46	0.19
	ISCED 4	0.01	0.15	0.00	0.04	0.06	0.05	0.14	0.04	0.06	0.20
	ISCED 5	0.19	0.18	0.23	0.08	0.06	0.05	0.26	0.15	0.05	0.11
Occupation of the father	ISCED 6	0.31	0.41	0.22	0.20	0.35	0.13	0.32	0.54	0.18	0.43
	Has never worked for pay	0.00	0.09	0.00	0.01	0.01	0.03	0.01	0.01	0.01	0.01
	Small business owner	0.12	0.18	0.13	0.13	0.15	0.21	0.12	0.14	0.15	0.11
	Clerical worker	0.04	0.06	0.17	0.06	0.03	0.09	0.08	0.02	0.17	0.02
	Service or sales worker	0.11	0.10	0.08	0.09	0.14	0.06	0.11	0.08	0.08	0.08
	Skilled agricultural or fishery worker	0.03	0.03	0.02	0.00	0.03	0.08	0.04	0.02	0.03	0.04
	Craft or trade worker	0.13	0.17	0.20	0.18	0.14	0.10	0.11	0.11	0.21	0.24
	Plant or machine operator	0.15	0.06	0.07	0.08	0.12	0.07	0.06	0.07	0.12	0.11
	General laborers	0.03	0.06	0.02	0.07	0.10	0.18	0.05	0.03	0.02	0.10
	Corporate manager or senior official	0.16	0.09	0.10	0.15	0.08	0.06	0.09	0.13	0.06	0.12
	Professional	0.15	0.13	0.13	0.15	0.14	0.09	0.26	0.29	0.11	0.13
Technician or associate professional	0.08	0.03	0.08	0.08	0.06	0.02	0.08	0.10	0.05	0.03	
Occupation of the mother	Has never worked for pay	0.03	0.32	0.02	0.15	0.03	0.75	0.02	0.08	0.12	0.02
	Small business owner	0.07	0.08	0.06	0.07	0.08	0.03	0.10	0.06	0.08	0.07
	Clerical worker	0.19	0.10	0.37	0.25	0.15	0.05	0.13	0.17	0.29	0.14
	Service or sales worker	0.19	0.07	0.25	0.20	0.22	0.03	0.13	0.09	0.12	0.24
	Skilled agricultural or fishery worker	0.01	0.01	0.01	0.00	0.01	0.01	0.02	0.00	0.02	0.02
	Craft or trade worker	0.02	0.00	0.02	0.01	0.01	0.00	0.07	0.01	0.04	0.04
	Plant or machine operator	0.04	0.00	0.01	0.01	0.03	0.00	0.04	0.01	0.04	0.02
	General laborers	0.07	0.05	0.06	0.06	0.13	0.03	0.05	0.03	0.07	0.12
	Corporate manager or senior official	0.10	0.04	0.02	0.09	0.03	0.01	0.07	0.08	0.02	0.07
	Professional	0.19	0.23	0.13	0.13	0.23	0.07	0.27	0.40	0.17	0.21
	Technician or associate professional	0.07	0.09	0.05	0.05	0.08	0.02	0.09	0.08	0.02	0.06
Books at home	0-10	0.13	0.10	0.05	0.16	0.06	0.42	0.07	0.09	0.13	0.11

	11-25	0.16	0.11	0.10	0.23	0.10	0.27	0.15	0.16	0.19	0.20
	26-100	0.34	0.29	0.32	0.37	0.28	0.20	0.34	0.35	0.35	0.37
	101-200	0.17	0.18	0.21	0.11	0.17	0.05	0.20	0.18	0.15	0.15
	More than 200	0.19	0.32	0.32	0.14	0.39	0.06	0.24	0.22	0.19	0.17
Time Reading at home	Less than one hr a week	0.41	0.38	0.35	0.46	0.36	0.23	0.35	0.36	0.50	0.36
	1-5 hr a week	0.38	0.30	0.37	0.34	0.41	0.30	0.39	0.38	0.34	0.44
	6-10 hr a week	0.12	0.17	0.16	0.12	0.14	0.21	0.15	0.15	0.10	0.14
	More than 10 hr a week	0.08	0.15	0.12	0.08	0.09	0.25	0.12	0.11	0.06	0.06

Appendix 2. Descriptive statistics of the socio-economic variables by country (continued)

Variables		Malta	Morocco	Oman	Netherlands	New Zealand	Northern Ireland	Norway	Poland	Portugal	Qatar
Standardised reading scores		0.29	0.21	0.24	0.18	0.37	0.35	0.12	0.13	0.15	0.36
Sex of the student	Male	0.51	0.49	0.50	0.49	0.50	0.48	0.50	0.51	0.50	0.50
	Female	0.49	0.51	0.50	0.51	0.50	0.52	0.50	0.49	0.50	0.50
Student age		9.77	10.16	9.71	10.05	10.06	10.41	9.77	10.34	9.88	9.95
Level of education of the father	Did not go to school	0.00	0.32	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.01
	ISCED 1	0.04	0.26	0.09	0.08	0.02	0.14	0.01	0.04	0.18	0.03
	ISCED 2	0.43	0.14	0.11	0.08	0.20	0.11	0.06	0.37	0.19	0.04
	ISCED 3	0.15	0.13	0.26	0.36	0.12	0.34	0.22	0.26	0.30	0.12
	ISCED 4	0.06	0.02	0.09	0.02	0.23	0.01	0.19	0.05	0.06	0.14
	ISCED 5	0.09	0.01	0.05	0.07	0.10	0.12	0.10	0.00	0.03	0.00
	ISCED 6	0.23	0.12	0.35	0.40	0.33	0.28	0.43	0.28	0.23	0.66
Level of education of the mother	Did not go to school	0.00	0.51	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.01
	ISCED 1	0.02	0.19	0.12	0.04	0.01	0.05	0.00	0.03	0.13	0.03
	ISCED 2	0.33	0.12	0.11	0.07	0.17	0.05	0.03	0.19	0.13	0.03
	ISCED 3	0.22	0.08	0.30	0.42	0.16	0.40	0.17	0.28	0.33	0.17
	ISCED 4	0.07	0.01	0.06	0.02	0.11	0.03	0.13	0.10	0.05	0.14
	ISCED 5	0.12	0.02	0.05	0.06	0.15	0.10	0.09	0.00	0.04	0.00
Occupation of the father	ISCED 6	0.23	0.08	0.28	0.39	0.40	0.37	0.58	0.41	0.33	0.62
	Has never worked for pay	0.00	0.11	0.05	0.00	0.00	0.00	0.00	0.00	0.01	0.02
	Small business owner	0.13	0.11	0.08	0.16	0.17	0.16	0.11	0.15	0.15	0.05
	Clerical worker	0.05	0.06	0.09	0.03	0.01	0.01	0.02	0.02	0.05	0.12
	Service or sales worker	0.12	0.08	0.16	0.08	0.06	0.07	0.08	0.10	0.15	0.06
	Skilled agricultural or fishery worker	0.02	0.17	0.02	0.03	0.07	0.03	0.02	0.07	0.02	0.00
	Craft or trade worker	0.15	0.20	0.02	0.14	0.14	0.19	0.18	0.23	0.16	0.01
	Plant or machine operator	0.06	0.04	0.04	0.05	0.06	0.09	0.06	0.14	0.11	0.02
	General laborers	0.06	0.09	0.06	0.04	0.04	0.05	0.03	0.02	0.03	0.00
	Corporate manager or senior official	0.14	0.06	0.21	0.17	0.15	0.11	0.11	0.11	0.10	0.24
	Professional	0.18	0.06	0.21	0.12	0.23	0.22	0.32	0.11	0.14	0.36
Technician or associate professional	0.07	0.02	0.08	0.17	0.07	0.06	0.08	0.03	0.08	0.12	
Occupation of the mother	Has never worked for pay	0.09	0.73	0.60	0.01	0.01	0.01	0.01	0.05	0.03	0.32
	Small business owner	0.07	0.04	0.03	0.09	0.12	0.06	0.04	0.09	0.09	0.02
	Clerical worker	0.24	0.03	0.04	0.19	0.14	0.20	0.09	0.14	0.16	0.14
	Service or sales worker	0.11	0.01	0.01	0.28	0.11	0.15	0.13	0.18	0.19	0.02
	Skilled agricultural or fishery worker	0.00	0.04	0.00	0.01	0.03	0.00	0.01	0.06	0.01	0.00
	Craft or trade worker	0.01	0.03	0.01	0.01	0.02	0.01	0.03	0.06	0.02	0.00
	Plant or machine operator	0.05	0.01	0.00	0.01	0.01	0.01	0.01	0.03	0.06	0.00
	General laborers	0.05	0.03	0.01	0.06	0.03	0.03	0.04	0.04	0.08	0.00
	Corporate manager or senior official	0.08	0.02	0.03	0.06	0.06	0.05	0.04	0.07	0.05	0.05
	Professional	0.26	0.04	0.23	0.17	0.36	0.36	0.50	0.18	0.21	0.36
	Technician or associate professional	0.05	0.02	0.05	0.11	0.10	0.11	0.10	0.11	0.10	0.09
Books at home	0-10	0.07	0.63	0.25	0.11	0.05	0.06	0.04	0.07	0.15	0.22

	11-25	0.12	0.20	0.31	0.14	0.09	0.12	0.07	0.17	0.19	0.27
	26-100	0.35	0.12	0.30	0.32	0.32	0.33	0.28	0.41	0.36	0.31
	101-200	0.19	0.02	0.07	0.18	0.20	0.21	0.23	0.17	0.15	0.09
	More than 200	0.27	0.02	0.07	0.25	0.34	0.28	0.37	0.19	0.16	0.11
Time Reading at home	Less than one hr a week	0.30	0.38	0.49	0.45	0.38	0.31	0.58	0.37	0.57	0.47
	1-5 hr a week	0.50	0.30	0.28	0.35	0.37	0.39	0.33	0.41	0.30	0.30
	6-10 hr a week	0.12	0.18	0.10	0.11	0.13	0.17	0.06	0.13	0.08	0.10
	More than 10 hr a week	0.08	0.15	0.13	0.08	0.12	0.13	0.04	0.08	0.05	0.12

Appendix 2. Descriptive statistics of the socio-economic variables by country (continued)

Variables	Russian Federation	Saudi Arabia	Singapore	Slovak Republic	Slovenia	Spain	Sweden	Trinidad and Tobago	United Arab Emirates
Standardised reading scores	0.11	0.25	0.17	0.15	0.15	0.16	0.18	0.23	0.35
Sex of the student	Male	0.51	0.45	0.51	0.51	0.51	0.50	0.47	0.49
	Female	0.49	0.55	0.49	0.49	0.49	0.50	0.53	0.51
Student age	10.77	9.89	10.39	10.37	9.85	9.82	10.73	10.14	9.76
Level of education of the father	Did not go to school	0.00	0.04	0.00	0.00	0.00	0.00	0.01	0.01
	ISCED 1	0.00	0.09	0.08	0.00	0.01	0.11	0.16	0.03
	ISCED 2	0.06	0.10	0.05	0.05	0.06	0.22	0.06	0.03
	ISCED 3	0.10	0.25	0.18	0.66	0.59	0.25	0.33	0.13
	ISCED 4	0.32	0.10	0.14	0.04	0.00	0.04	0.17	0.09
	ISCED 5	0.14	0.01	0.15	0.00	0.14	0.10	0.10	0.21
Level of education of the mother	ISCED 6	0.37	0.41	0.40	0.24	0.20	0.29	0.32	0.12
	Did not go to school	0.00	0.07	0.00	0.00	0.00	0.00	0.01	0.01
	ISCED 1	0.00	0.11	0.05	0.00	0.00	0.09	0.11	0.03
	ISCED 2	0.05	0.10	0.05	0.06	0.04	0.18	0.03	0.08
	ISCED 3	0.07	0.24	0.24	0.57	0.45	0.24	0.23	0.27
	ISCED 4	0.28	0.10	0.16	0.06	0.00	0.03	0.17	0.08
Occupation of the father	ISCED 5	0.14	0.00	0.14	0.02	0.21	0.10	0.11	0.26
	ISCED 6	0.46	0.37	0.35	0.29	0.31	0.36	0.46	0.19
	Has never worked for pay	0.00	0.07	0.00	0.02	0.01	0.01	0.00	0.01
	Small business owner	0.09	0.07	0.14	0.18	0.12	0.15	0.14	0.15
	Clerical worker	0.05	0.08	0.02	0.03	0.06	0.05	0.03	0.02
	Service or sales worker	0.14	0.14	0.11	0.09	0.13	0.12	0.07	0.13
	Skilled agricultural or fishery worker	0.03	0.02	0.00	0.02	0.03	0.03	0.01	0.04
	Craft or trade worker	0.19	0.03	0.04	0.20	0.18	0.16	0.11	0.20
	Plant or machine operator	0.16	0.02	0.05	0.15	0.11	0.11	0.12	0.10
	General laborers	0.03	0.02	0.03	0.04	0.03	0.07	0.03	0.12
Occupation of the mother	Corporate manager or senior official	0.15	0.27	0.21	0.08	0.09	0.09	0.15	0.07
	Professional	0.12	0.20	0.24	0.13	0.14	0.18	0.20	0.11
	Technician or associate professional	0.02	0.08	0.16	0.06	0.11	0.05	0.15	0.06
	Has never worked for pay	0.03	0.59	0.07	0.04	0.01	0.04	0.01	0.05
	Small business owner	0.04	0.03	0.07	0.08	0.06	0.09	0.06	0.15
	Clerical worker	0.16	0.04	0.20	0.18	0.19	0.19	0.07	0.16
Occupation of the mother	Service or sales worker	0.23	0.01	0.12	0.21	0.22	0.18	0.19	0.19
	Skilled agricultural or fishery worker	0.01	0.00	0.00	0.01	0.02	0.02	0.00	0.01
	Craft or trade worker	0.03	0.00	0.00	0.02	0.03	0.02	0.00	0.02
	Plant or machine operator	0.05	0.00	0.02	0.09	0.01	0.03	0.02	0.02

	General laborers	0.06	0.01	0.01	0.05	0.04	0.12	0.03	0.12	0.00
	Corporate manager or senior official	0.12	0.05	0.15	0.04	0.06	0.04	0.08	0.06	0.08
	Professional	0.20	0.23	0.21	0.16	0.25	0.22	0.35	0.16	0.30
	Technician or associate professional	0.07	0.03	0.13	0.14	0.11	0.06	0.18	0.06	0.08
Books at home	0-10	0.08	0.35	0.15	0.10	0.07	0.06	0.04	0.10	0.22
	11-25	0.18	0.28	0.20	0.14	0.17	0.14	0.07	0.21	0.26
	26-100	0.41	0.23	0.39	0.42	0.41	0.37	0.28	0.42	0.32
	101-200	0.15	0.06	0.13	0.17	0.17	0.20	0.21	0.15	0.10
	More than 200	0.17	0.08	0.13	0.17	0.18	0.24	0.40	0.12	0.10
Time Reading at home	Less than one hr a week	0.35	0.51	0.34	0.41	0.41	0.43	0.56	0.45	0.41
	1-5 hr a week	0.43	0.27	0.40	0.36	0.40	0.41	0.34	0.32	0.35
	6-10 hr a week	0.14	0.12	0.14	0.14	0.11	0.10	0.06	0.09	0.12
	More than 10 hr a week	0.09	0.10	0.12	0.09	0.08	0.07	0.03	0.13	0.12

Notes: PIRLS recommended practices have been applied. ISCED = International Standard Classification of Education; PIRLS = Progress in International Reading Literacy Study.

Source: Authors' own calculations.

Online Supplemental Material

Table S1. Influence of attendance to the FSECE on fourth grade students' reading scores, ordinary least squares

Variables	Australia	Austria	Azerbaijan	French-speaking Belgium	Bulgaria	Canada	Chinese Taipei	Czech Republic	Denmark	Finland
Attendance to the FSECE (ref.: no)										
Yes	-0.050 (0.031)	-0.025 (0.022)	-0.075** (0.030)	0.116*** (0.043)	-0.042 (0.026)	0.032* (0.018)	0.028 (0.022)	0.008 (0.032)	0.026 (0.026)	-0.056** (0.023)
Attendance to the FSECE. Missing flag	-0.104** (0.047)	-0.060 (0.038)	0.043 (0.037)	0.086 (0.088)	-0.102** (0.044)	-0.065** (0.028)	-0.169** (0.071)	-0.120*** (0.036)	-0.121** (0.050)	-0.108** (0.049)
Occupation of the mother (ref.: has never worked for pay)										
Small business owner	0.220* (0.130)	0.400*** (0.081)	-0.016 (0.090)	0.171** (0.079)	0.251** (0.095)	0.215*** (0.063)	0.048 (0.062)	0.725*** (0.157)	0.713*** (0.121)	0.195 (0.130)
Clerical worker	0.302** (0.131)	0.419*** (0.064)	-0.003 (0.070)	0.275*** (0.056)	0.322*** (0.084)	0.164** (0.064)	0.105* (0.058)	0.775*** (0.159)	0.723*** (0.108)	0.270** (0.122)
Service or sales worker	0.196 (0.124)	0.384*** (0.068)	0.143* (0.082)	0.283*** (0.061)	0.171** (0.080)	0.162** (0.065)	0.075 (0.058)	0.542*** (0.155)	0.630*** (0.108)	0.252** (0.119)
Skilled agricultural or fishery worker	0.244 (0.249)	0.421*** (0.111)	-0.268 (0.173)	0.012 (0.273)	0.188 (0.115)	0.194* (0.105)	0.095 (0.116)	0.706*** (0.200)	0.427** (0.194)	0.326* (0.195)
Craft or trade worker	0.309** (0.143)	0.384*** (0.083)	0.174** (0.082)	0.197** (0.083)	0.096 (0.084)	0.212*** (0.066)	0.027 (0.089)	0.569*** (0.164)	0.622*** (0.136)	0.456*** (0.147)
Plant or machine operator	0.223 (0.225)	0.134 (0.163)	0.443*** (0.123)	0.179 (0.130)	0.118 (0.087)	0.156** (0.077)	0.070 (0.070)	0.477*** (0.168)	0.582*** (0.118)	0.111 (0.132)
General laborers	0.118 (0.156)	0.298*** (0.072)	-0.107 (0.076)	0.154** (0.061)	0.046 (0.094)	0.066 (0.059)	0.076 (0.093)	0.528*** (0.153)	0.530*** (0.124)	0.076 (0.133)
Corporate manager or senior official	0.178 (0.137)	0.261*** (0.092)	0.100 (0.089)	0.309*** (0.085)	0.302*** (0.091)	0.227*** (0.065)	0.049 (0.064)	0.700*** (0.157)	0.895*** (0.101)	0.272* (0.137)
Professional	0.197 (0.134)	0.403*** (0.074)	0.146*** (0.043)	0.257*** (0.062)	0.292*** (0.085)	0.269*** (0.062)	0.077 (0.062)	0.772*** (0.163)	0.861*** (0.111)	0.296** (0.125)
Technician or associate professional	0.218* (0.123)	0.427*** (0.085)	-0.075 (0.103)	0.258*** (0.080)	0.230*** (0.081)	0.235*** (0.071)	0.091 (0.063)	0.802*** (0.161)	0.741*** (0.109)	0.280** (0.135)
Missing flag	0.077 (0.131)	0.206*** (0.066)	-0.069** (0.033)	0.149*** (0.055)	0.087 (0.084)	0.110* (0.061)	-0.060 (0.055)	0.517*** (0.153)	0.584*** (0.106)	0.174 (0.125)
Female (ref.: male)	0.186*** (0.018)	0.055*** (0.021)	0.165*** (0.021)	0.098*** (0.018)	0.165*** (0.024)	0.136*** (0.016)	0.146*** (0.018)	0.068*** (0.024)	0.162*** (0.021)	0.240*** (0.020)
Sex of the student. Missing flag	0.081 (0.179)	0.753*** (0.269)	-0.543 (0.867)	0.257 (0.184)	-0.569 (0.369)	0.517*** (0.136)	0.368 (0.343)	0.860*** (0.205)	-0.007 (0.158)	0.806*** (0.179)
Student age	0.127*** (0.026)	-0.168*** (0.025)	0.053* (0.027)	-0.222*** (0.024)	0.030 (0.035)	0.065** (0.027)	0.255*** (0.035)	-0.088*** (0.025)	-0.039 (0.030)	-0.029 (0.040)
Student age. Missing flag	-	-	0.901** (0.402)	-2.337*** (0.272)	0.792 (0.548)	0.103 (0.398)	-	0.049 (0.356)	-	-
Level of education of the father (ref.: did not go to school)										
ISCED 1	-0.103 (0.471)	0.233 (0.342)	-0.068 (0.133)	0.015 (0.120)	0.162 (0.112)	-0.350 (0.241)	0.464* (0.272)	-0.017 (0.831)	-0.347 (0.264)	0.737* (0.409)
ISCED 2	0.112	0.569	0.140	0.099	0.160	-0.160	0.400	0.006	-0.216	0.905**

	(0.448)	(0.344)	(0.119)	(0.125)	(0.132)	(0.192)	(0.259)	(0.711)	(0.254)	(0.350)
ISCED 3	0.180	0.621*	0.076	0.146	0.364**	-0.042	0.550**	0.215	-0.117	1.015***
	(0.448)	(0.326)	(0.119)	(0.124)	(0.140)	(0.202)	(0.251)	(0.737)	(0.250)	(0.354)
ISCED 4	0.204	0.907***	0.192	0.069	0.448***	-0.014	0.672***	0.495	-0.270	1.097***
	(0.450)	(0.339)	(0.118)	(0.128)	(0.138)	(0.209)	(0.254)	(0.741)	(0.264)	(0.354)
ISCED 5	0.287	0.679**	0.182	-	0.466***	0.004	0.633**	0.328	-0.121	1.037***
	(0.445)	(0.317)	(0.137)		(0.144)	(0.208)	(0.248)	(0.728)	(0.253)	(0.355)
ISCED 6	0.388	0.766**	0.349***	0.296**	0.601***	0.167	0.718***	0.370	-0.099	1.111***
	(0.441)	(0.322)	(0.123)	(0.123)	(0.141)	(0.210)	(0.247)	(0.735)	(0.254)	(0.355)
Missing flag	0.022	0.489	0.146	0.059	0.307**	0.020	0.362	0.205	-0.217	0.880**
	(0.462)	(0.328)	(0.119)	(0.131)	(0.144)	(0.207)	(0.260)	(0.738)	(0.256)	(0.365)
Level of education of the mother (ref.: did not go to school)										
ISCED 1	0.121	-0.266	0.128	-0.006	-0.070	0.179	-0.033	1.030	-0.203	0.478
	(0.663)	(0.249)	(0.176)	(0.158)	(0.128)	(0.266)	(0.159)	(1.033)	(0.244)	(0.353)
ISCED 2	-0.099	-0.181	0.104	0.075	0.045	0.297	-0.189	1.348	-0.133	0.663*
	(0.623)	(0.268)	(0.163)	(0.146)	(0.125)	(0.273)	(0.151)	(1.127)	(0.243)	(0.344)
ISCED 3	0.062	0.085	0.187	0.242*	0.293**	0.342	-0.025	1.584	0.057	0.851**
	(0.616)	(0.259)	(0.168)	(0.143)	(0.135)	(0.253)	(0.149)	(1.138)	(0.233)	(0.340)
ISCED 4	0.057	0.115	0.143	0.172	0.273*	0.412	0.135	1.612	0.057	0.833**
	(0.627)	(0.265)	(0.172)	(0.146)	(0.137)	(0.252)	(0.151)	(1.137)	(0.240)	(0.351)
ISCED 5	0.113	0.266	0.314*	-	0.365**	0.461*	0.147	1.665	0.059	0.895**
	(0.615)	(0.268)	(0.176)		(0.140)	(0.261)	(0.172)	(1.141)	(0.234)	(0.339)
ISCED 6	0.279	0.254	0.383**	0.400***	0.480***	0.578**	0.256*	1.728	0.110	0.999***
	(0.621)	(0.261)	(0.179)	(0.141)	(0.137)	(0.254)	(0.148)	(1.132)	(0.233)	(0.343)
Missing flag	0.013	-0.051	0.167	0.149	0.166	0.298	-0.145	1.467	-0.014	0.703**
	(0.615)	(0.264)	(0.164)	(0.143)	(0.126)	(0.249)	(0.165)	(1.135)	(0.226)	(0.345)
Occupation of the father (ref.: has never worked for pay)										
Small business owner	0.370	0.385**	0.221***	0.080	0.300**	-0.004	0.256**	0.376	0.535***	0.444**
	(0.265)	(0.149)	(0.072)	(0.084)	(0.122)	(0.090)	(0.124)	(0.362)	(0.185)	(0.219)
Clerical worker	0.546*	0.279*	0.037	0.059	0.138	-0.002	0.252*	0.454	0.736***	0.503**
	(0.284)	(0.151)	(0.089)	(0.092)	(0.135)	(0.099)	(0.127)	(0.372)	(0.211)	(0.226)
Service or sales worker	0.278	0.340**	0.190***	-0.009	0.267**	0.034	0.160	0.422	0.607***	0.495**
	(0.268)	(0.148)	(0.069)	(0.094)	(0.119)	(0.096)	(0.128)	(0.361)	(0.184)	(0.229)
Skilled agricultural or fishery worker	0.171	0.208	-0.094	-0.304**	0.237*	-0.216*	0.216	0.169	0.561***	0.475**
	(0.290)	(0.183)	(0.103)	(0.120)	(0.124)	(0.111)	(0.147)	(0.362)	(0.205)	(0.224)
Craft or trade worker	0.325	0.176	0.098	-0.158*	0.222*	-0.004	0.146	0.276	0.488***	0.355
	(0.275)	(0.149)	(0.065)	(0.085)	(0.116)	(0.095)	(0.129)	(0.362)	(0.184)	(0.215)
Plant or machine operator	0.078	0.092	0.187**	-0.118	0.198	-0.081	0.102	0.244	0.419**	0.460**
	(0.269)	(0.169)	(0.083)	(0.088)	(0.120)	(0.105)	(0.125)	(0.361)	(0.200)	(0.216)
General laborers	0.219	0.213	-0.003	-0.202**	0.249*	-0.210**	0.051	0.183	0.406**	0.315
	(0.271)	(0.150)	(0.074)	(0.095)	(0.130)	(0.096)	(0.155)	(0.367)	(0.192)	(0.208)
Corporate manager or senior official	0.409	0.420***	0.301***	0.087	0.176	0.058	0.250**	0.450	0.671***	0.574**
	(0.268)	(0.148)	(0.084)	(0.105)	(0.122)	(0.092)	(0.122)	(0.368)	(0.193)	(0.222)
Professional	0.461*	0.401***	0.186**	0.169*	0.324***	0.063	0.241*	0.538	0.773***	0.592***
	(0.262)	(0.150)	(0.080)	(0.091)	(0.122)	(0.089)	(0.131)	(0.362)	(0.190)	(0.223)
Technician or associate professional	0.559**	0.443***	0.245***	0.079	0.190	0.098	0.236*	0.482	0.701***	0.366
	(0.271)	(0.147)	(0.091)	(0.092)	(0.117)	(0.091)	(0.136)	(0.361)	(0.199)	(0.227)

Missing flag	0.196 (0.261)	0.179 (0.149)	0.054 (0.058)	-0.067 (0.082)	0.124 (0.117)	-0.134 (0.094)	0.139 (0.125)	0.261 (0.357)	0.524*** (0.184)	0.300 (0.229)
Books at home (ref.: 0-10)										
11-25	0.108 (0.069)	0.174*** (0.047)	0.179*** (0.031)	0.085** (0.038)	0.226*** (0.033)	0.040 (0.029)	0.128*** (0.036)	0.102 (0.062)	0.070 (0.052)	0.124** (0.049)
26-100	0.231*** (0.064)	0.397*** (0.044)	0.141*** (0.045)	0.196*** (0.043)	0.319*** (0.040)	0.124*** (0.027)	0.231*** (0.036)	0.290*** (0.056)	0.166*** (0.052)	0.264*** (0.048)
101-200	0.283*** (0.067)	0.583*** (0.049)	0.196*** (0.059)	0.355*** (0.052)	0.404*** (0.047)	0.201*** (0.030)	0.335*** (0.041)	0.424*** (0.064)	0.279*** (0.050)	0.368*** (0.041)
More than 200	0.380*** (0.064)	0.712*** (0.046)	0.224*** (0.067)	0.487*** (0.050)	0.458*** (0.049)	0.287*** (0.030)	0.420*** (0.042)	0.504*** (0.061)	0.415*** (0.051)	0.474*** (0.042)
Missing flag	0.618*** (0.093)	0.455*** (0.086)	-0.125 (0.085)	0.374*** (0.082)	-0.304** (0.148)	0.232*** (0.078)	0.172* (0.103)	0.320** (0.127)	0.237*** (0.082)	0.470*** (0.087)
Time Reading at home (ref.: less than one hr a week)										
1-5 hr a week	0.462*** (0.022)	0.170*** (0.022)	0.249*** (0.028)	0.205*** (0.020)	0.187*** (0.029)	0.325*** (0.018)	0.258*** (0.023)	0.271*** (0.024)	0.268*** (0.021)	0.390*** (0.021)
6-10 hr a week	0.645*** (0.028)	0.339*** (0.031)	0.121** (0.051)	0.289*** (0.037)	0.153*** (0.034)	0.532*** (0.029)	0.223*** (0.038)	0.452*** (0.036)	0.389*** (0.044)	0.594*** (0.034)
More than 10 hr a week	0.457*** (0.044)	0.287*** (0.032)	-0.023 (0.049)	0.256*** (0.048)	0.129*** (0.040)	0.447*** (0.034)	0.095*** (0.035)	0.266*** (0.049)	0.340*** (0.057)	0.574*** (0.040)
Missing flag	0.019 (0.097)	-0.172 (0.111)	-0.417*** (0.084)	-0.177* (0.106)	-0.659*** (0.129)	-0.435*** (0.074)	-0.349** (0.145)	-0.649*** (0.185)	-0.076 (0.103)	-0.458*** (0.127)
PIRLS 2016 (ref.: PIRLS 2011)	0.009 (0.034)	-0.010 (0.033)	-0.025 (0.059)	-0.019 (0.097)	-0.078 (0.052)	0.019 (0.026)	-0.019 (0.029)	0.040 (0.043)	0.022 (0.029)	0.052 (0.031)
Constant	-2.620*** (0.439)	-0.231 (0.416)	-1.199*** (0.320)	1.139*** (0.342)	-1.727*** (0.437)	-1.659*** (0.440)	-3.830*** (0.452)	-2.459 (1.625)	-1.238** (0.477)	-2.977*** (0.458)
Observations	12,467	9,030	10,875	8,350	9,542	41,451	8,619	10,093	8,102	9,536
R-squared	0.213	0.294	0.129	0.277	0.379	0.186	0.216	0.246	0.215	0.250

Table S1. Influence of attendance to the FSECE on fourth grade students' reading scores, ordinary least squares (continued)

Variables	France	Georgia	Germany	Hong Kong SAR	Hungary	Islamic Republic of Iran	Ireland	Israel	Italy	Lithuania
Attendance to the FSECE (ref.: no)										
Yes	0.053* (0.030)	-0.048* (0.025)	0.083*** (0.025)	-0.079*** (0.027)	0.138*** (0.028)	-0.052 (0.038)	-0.111*** (0.031)	0.160*** (0.028)	0.034 (0.023)	0.012 (0.027)
Attendance to the FSECE. Missing flag	0.100* (0.054)	-0.004 (0.043)	-0.062 (0.044)	-0.076* (0.039)	-0.072* (0.037)	-0.031 (0.037)	-0.073** (0.035)	0.043 (0.068)	-0.077* (0.042)	-0.093* (0.048)
Occupation of the mother (ref.: has never worked for pay)										
Small business owner	0.213*** (0.071)	-0.153*** (0.057)	0.091 (0.087)	-0.184*** (0.067)	0.431*** (0.081)	0.025 (0.072)	0.381*** (0.132)	0.412*** (0.066)	0.227*** (0.059)	0.209 (0.126)
Clerical worker	0.288*** (0.062)	0.038 (0.063)	0.257*** (0.076)	-0.144** (0.060)	0.378*** (0.072)	0.088 (0.070)	0.381*** (0.120)	0.414*** (0.056)	0.265*** (0.042)	0.291** (0.130)
Service or sales worker	0.201*** (0.063)	-0.034 (0.057)	0.217*** (0.076)	-0.012 (0.048)	0.393*** (0.070)	0.080 (0.083)	0.391*** (0.126)	0.370*** (0.053)	0.253*** (0.049)	0.230* (0.126)
Skilled agricultural or fishery worker	0.062 (0.131)	-0.202 (0.164)	0.214 (0.186)	-1.182*** (0.369)	0.212** (0.091)	-0.112 (0.197)	0.430** (0.170)	0.474 (0.293)	0.148 (0.099)	0.094 (0.156)
Craft or trade worker	0.078 (0.094)	-0.354 (0.256)	0.344*** (0.116)	-0.112 (0.165)	0.321** (0.127)	0.225 (0.135)	0.470*** (0.128)	0.314*** (0.109)	0.188*** (0.067)	0.256* (0.148)
Plant or machine operator	0.128 (0.087)	-0.033 (0.164)	0.192 (0.153)	-0.223 (0.185)	0.405*** (0.093)	-0.139 (0.172)	0.478*** (0.118)	-0.085 (0.178)	0.219*** (0.063)	0.252* (0.140)
General laborers	0.211*** (0.072)	-0.084 (0.069)	0.145 (0.093)	-0.053 (0.057)	0.268*** (0.073)	-0.016 (0.106)	0.214 (0.141)	0.334*** (0.075)	0.093** (0.047)	0.146 (0.126)
Corporate manager or senior official	0.217*** (0.075)	0.135** (0.062)	0.319*** (0.107)	-0.180*** (0.067)	0.488*** (0.095)	-0.113 (0.128)	0.476*** (0.134)	0.365*** (0.064)	0.345*** (0.083)	0.247* (0.128)
Professional	0.346*** (0.072)	0.087** (0.043)	0.239*** (0.087)	-0.090 (0.074)	0.455*** (0.084)	0.222*** (0.063)	0.498*** (0.122)	0.454*** (0.055)	0.251*** (0.050)	0.289** (0.139)
Technician or associate professional	0.282*** (0.068)	-0.050 (0.054)	0.396*** (0.084)	-0.040 (0.084)	0.453*** (0.077)	0.187** (0.077)	0.467*** (0.128)	0.373*** (0.058)	0.321*** (0.072)	0.305** (0.134)
Missing flag	0.118** (0.059)	-0.043 (0.036)	0.090 (0.070)	-0.110** (0.051)	0.242*** (0.069)	-0.033 (0.033)	0.310** (0.124)	0.139*** (0.048)	0.108*** (0.041)	0.089 (0.138)
Female (ref.: male)	0.079*** (0.019)	0.236*** (0.021)	0.060*** (0.020)	0.181*** (0.024)	0.109*** (0.021)	0.287*** (0.030)	0.104*** (0.025)	0.076*** (0.025)	0.043** (0.018)	0.232*** (0.022)
Sex of the student. Missing flag	0.105 (0.125)	0.122 (0.319)	0.179 (0.145)	0.252 (0.214)	0.418** (0.165)	-0.413 (0.638)	0.418** (0.177)	-0.685** (0.295)	0.253* (0.150)	0.080 (0.151)
Student age	-0.263*** (0.024)	0.096*** (0.028)	-0.270*** (0.026)	0.144*** (0.031)	-0.205*** (0.025)	-0.059** (0.029)	0.056* (0.033)	0.106*** (0.031)	0.167*** (0.027)	0.134*** (0.029)
Student age. Missing flag	-2.735*** (0.606)				-2.447*** (0.277)	0.031 (0.399)				
Level of education of the father (ref.: did not go to school)										
ISCED 1	-0.001 (0.130)	0.604 (0.478)	0.119 (0.170)	0.005 (0.172)	-0.144 (0.351)	0.046 (0.055)	0.196 (0.408)	0.089 (0.155)	-0.091 (0.218)	0.021 (0.562)
ISCED 2	0.092 (0.121)	0.600*** (0.166)	0.332** (0.141)	-0.041 (0.170)	-0.000 (0.350)	0.099 (0.060)	0.265 (0.414)	0.107 (0.146)	0.088 (0.214)	0.241 (0.560)
ISCED 3	0.143 (0.117)	0.791*** (0.169)	0.390*** (0.138)	0.097 (0.178)	0.162 (0.350)	0.284*** (0.062)	0.370 (0.411)	0.256* (0.146)	0.239 (0.219)	0.407 (0.562)

ISCED 4	0.205 (0.155)	0.857*** (0.167)	-	0.067 (0.186)	0.222 (0.355)	0.333*** (0.098)	0.472 (0.404)	0.234 (0.157)	0.227 (0.217)	0.373 (0.561)
ISCED 5	0.273** (0.123)	0.922*** (0.174)	0.412*** (0.139)	0.010 (0.184)	0.222 (0.358)	0.238*** (0.084)	0.428 (0.409)	0.355** (0.152)	0.257 (0.231)	0.404 (0.567)
ISCED 6	0.353*** (0.118)	0.999*** (0.165)	0.550*** (0.139)	0.087 (0.188)	0.371 (0.351)	0.371*** (0.074)	0.569 (0.408)	0.456*** (0.148)	0.295 (0.220)	0.584 (0.561)
Missing flag	-0.001 (0.128)	0.739*** (0.171)	0.372** (0.151)	0.033 (0.176)	0.014 (0.356)	0.028 (0.071)	0.175 (0.408)	0.238 (0.155)	0.054 (0.207)	0.234 (0.559)
Level of education of the mother (ref.: did not go to school)										
ISCED 1	0.022 (0.151)	-0.225 (0.322)	-0.084 (0.144)	0.345** (0.140)	0.447 (0.286)	0.230*** (0.061)	0.145 (0.210)	-0.217* (0.124)	0.010 (0.171)	-0.479 (0.661)
ISCED 2	-0.053 (0.145)	0.072 (0.255)	0.072 (0.125)	0.422*** (0.133)	0.612** (0.289)	0.396*** (0.057)	0.205 (0.216)	0.091 (0.148)	0.278 (0.168)	-0.067 (0.649)
ISCED 3	0.071 (0.141)	-0.166 (0.238)	0.233** (0.109)	0.395*** (0.132)	0.735** (0.291)	0.555*** (0.067)	0.340 (0.215)	0.378*** (0.126)	0.416** (0.167)	0.019 (0.647)
ISCED 4	0.252 (0.172)	-0.129 (0.241)	-	0.595*** (0.163)	0.913*** (0.292)	0.584*** (0.070)	0.319 (0.219)	0.392*** (0.135)	0.383** (0.171)	0.151 (0.650)
ISCED 5	0.266* (0.145)	-0.024 (0.244)	0.271** (0.121)	0.523*** (0.153)	0.856*** (0.292)	0.755*** (0.081)	0.438** (0.216)	0.483*** (0.130)	0.428** (0.169)	0.197 (0.654)
ISCED 6	0.305** (0.145)	0.102 (0.238)	0.405*** (0.126)	0.588*** (0.153)	0.908*** (0.288)	0.765*** (0.074)	0.417* (0.210)	0.522*** (0.131)	0.511*** (0.172)	0.314 (0.647)
Missing flag	0.035 (0.138)	-0.174 (0.246)	0.070 (0.125)	0.224 (0.136)	0.608** (0.295)	0.074 (0.079)	0.268 (0.212)	0.176 (0.128)	0.246 (0.165)	0.131 (0.643)
Occupation of the father (ref.: has never worked for pay)										
Small business owner	0.262 (0.167)	0.045 (0.077)	0.045 (0.196)	-0.065 (0.127)	0.211** (0.093)	0.267*** (0.065)	0.149 (0.123)	0.420*** (0.114)	0.490*** (0.142)	0.388** (0.188)
Clerical worker	0.298* (0.175)	0.007 (0.088)	0.094 (0.203)	0.009 (0.124)	0.100 (0.094)	0.356*** (0.094)	0.242* (0.121)	0.307** (0.126)	0.475*** (0.147)	0.453** (0.220)
Service or sales worker	0.283 (0.179)	-0.044 (0.084)	0.065 (0.203)	-0.107 (0.127)	0.167* (0.089)	0.433*** (0.094)	0.126 (0.119)	0.451*** (0.108)	0.547*** (0.153)	0.301 (0.187)
Skilled agricultural or fishery worker	0.300 (0.181)	0.009 (0.118)	0.296 (0.225)	-0.396* (0.213)	0.155 (0.102)	0.200** (0.097)	0.236* (0.135)	0.064 (0.126)	0.237 (0.173)	0.122 (0.224)
Craft or trade worker	0.091 (0.160)	0.018 (0.087)	-0.058 (0.201)	-0.098 (0.111)	0.189** (0.094)	0.463*** (0.088)	0.184 (0.121)	0.287*** (0.106)	0.460*** (0.148)	0.291 (0.181)
Plant or machine operator	0.136 (0.172)	-0.033 (0.099)	-0.086 (0.213)	-0.116 (0.119)	0.182* (0.097)	0.419*** (0.078)	0.092 (0.129)	0.371*** (0.112)	0.460*** (0.151)	0.212 (0.199)
General laborers	0.059 (0.168)	-0.135 (0.110)	-0.045 (0.219)	-0.088 (0.120)	0.135 (0.092)	0.337*** (0.077)	0.131 (0.129)	0.417*** (0.124)	0.358** (0.154)	0.121 (0.195)
Corporate manager or senior official	0.181 (0.172)	0.069 (0.080)	0.085 (0.205)	-0.118 (0.131)	0.237** (0.100)	0.449*** (0.107)	0.208 (0.128)	0.535*** (0.116)	0.592*** (0.145)	0.415** (0.180)
Professional	0.320* (0.176)	0.109 (0.081)	0.146 (0.215)	-0.120 (0.134)	0.263*** (0.098)	0.358*** (0.114)	0.269** (0.123)	0.552*** (0.115)	0.607*** (0.154)	0.379** (0.188)
Technician or associate professional	0.240 (0.173)	0.279** (0.110)	0.122 (0.213)	-0.052 (0.133)	0.182* (0.098)	0.301*** (0.113)	0.207* (0.121)	0.554*** (0.109)	0.728*** (0.150)	0.455** (0.190)
Missing flag	0.142 (0.173)	-0.034 (0.075)	0.040 (0.195)	-0.187 (0.118)	0.072 (0.089)	0.235*** (0.085)	0.015 (0.117)	0.312*** (0.112)	0.420*** (0.149)	0.227 (0.190)
Books at home (ref.: 0-10)										

11-25	0.056 (0.045)	0.079 (0.064)	0.130** (0.061)	0.053 (0.036)	0.209*** (0.049)	0.161*** (0.034)	0.060 (0.050)	0.096** (0.047)	0.052 (0.035)	0.099** (0.041)
26-100	0.248*** (0.042)	0.295*** (0.055)	0.355*** (0.056)	0.079** (0.037)	0.439*** (0.044)	0.254*** (0.035)	0.147*** (0.043)	0.237*** (0.045)	0.145*** (0.034)	0.236*** (0.034)
101-200	0.382*** (0.045)	0.371*** (0.058)	0.497*** (0.060)	0.155*** (0.050)	0.511*** (0.051)	0.333*** (0.051)	0.347*** (0.050)	0.342*** (0.051)	0.239*** (0.043)	0.310*** (0.043)
More than 200	0.471*** (0.053)	0.442*** (0.063)	0.619*** (0.065)	0.138** (0.054)	0.610*** (0.049)	0.264*** (0.061)	0.378*** (0.047)	0.394*** (0.047)	0.297*** (0.040)	0.424*** (0.042)
Missing flag	0.186** (0.072)	0.088 (0.106)	0.441*** (0.077)	-0.066 (0.075)	0.662*** (0.094)	0.219** (0.095)	0.018 (0.089)	0.487*** (0.087)	0.081 (0.069)	0.581*** (0.071)
Time Reading at home (ref.: less than one hr a week)										
1-5 hr a week	0.217*** (0.022)	0.298*** (0.029)	0.224*** (0.029)	0.340*** (0.024)	0.173*** (0.020)	0.242*** (0.045)	0.372*** (0.022)	0.218*** (0.019)	0.202*** (0.024)	0.345*** (0.027)
6-10 hr a week	0.320*** (0.036)	0.410*** (0.036)	0.340*** (0.034)	0.348*** (0.037)	0.181*** (0.029)	0.158*** (0.038)	0.507*** (0.036)	0.202*** (0.032)	0.136*** (0.035)	0.393*** (0.035)
More than 10 hr a week	0.333*** (0.038)	0.213*** (0.036)	0.291*** (0.051)	0.184*** (0.045)	0.237*** (0.037)	0.102*** (0.029)	0.571*** (0.040)	0.182*** (0.036)	0.065 (0.044)	0.304*** (0.055)
Missing flag	-0.160* (0.095)	-0.676*** (0.089)	-0.227* (0.135)	-0.490*** (0.169)	-0.477*** (0.112)	-0.473*** (0.162)	-0.232** (0.112)	-0.482*** (0.112)	-0.465*** (0.117)	-0.155 (0.099)
PIRLS 2016 (ref.: PIRLS 2011)	-0.029 (0.034)	0.064 (0.039)	0.049 (0.048)	-0.047 (0.050)	-0.110*** (0.030)	0.006 (0.031)	-0.025 (0.041)	-0.101*** (0.034)	0.004 (0.033)	-0.079** (0.039)
Constant	1.456*** (0.361)	-2.259*** (0.346)	1.391*** (0.339)	-1.947*** (0.373)	0.222 (0.450)	-0.611** (0.270)	-2.313*** (0.527)	-2.888*** (0.390)	-3.045*** (0.348)	- (0.854)
Observations	9,205	10,537	7,959	7,224	9,827	10,143	9,131	8,227	8,129	8,978
R-squared	0.265	0.238	0.273	0.093	0.383	0.285	0.284	0.307	0.210	0.267

Table S1. Influence of attendance to the FSECE on fourth grade students' reading scores, ordinary least squares (continued)

Variables	Malta	Morocco	Oman	Netherlands	New Zealand	Northern Ireland	Norway	Poland	Portugal	Qatar
Attendance to the FSECE (ref.: no)										
Yes	-0.041 (0.032)	0.028 (0.025)	-0.004 (0.029)	-0.122*** (0.042)	-0.035 (0.024)	0.059 (0.102)	-0.001 (0.043)	0.015 (0.033)	-0.038 (0.024)	0.012 (0.021)
Attendance to the FSECE. Missing flag	-0.008 (0.030)	-0.039 (0.044)	-0.018 (0.023)	-0.108 (0.082)	-0.115** (0.057)	-0.112*** (0.042)	0.023 (0.079)	-0.050 (0.037)	-0.107*** (0.034)	-0.068** (0.026)
Occupation of the mother (ref.: has never worked for pay)										
Small business owner	0.144** (0.064)	0.154* (0.092)	-0.124** (0.058)	0.264** (0.111)	0.201** (0.098)	0.198 (0.158)	0.295* (0.154)	0.006 (0.063)	0.065 (0.085)	0.139** (0.066)
Clerical worker	0.275*** (0.047)	0.152** (0.068)	0.072 (0.057)	0.278*** (0.098)	0.247*** (0.092)	0.209 (0.152)	0.236 (0.143)	0.104* (0.062)	0.126 (0.090)	-0.100*** (0.035)
Service or sales worker	0.232*** (0.056)	-0.026 (0.108)	-0.034 (0.087)	0.233** (0.103)	0.202** (0.097)	0.223 (0.146)	0.292** (0.135)	0.054 (0.063)	0.081 (0.092)	0.116 (0.089)
Skilled agricultural or fishery worker	0.019 (0.184)	0.397* (0.224)	-0.415*** (0.143)	-0.088 (0.210)	0.134 (0.108)	-0.378 (0.430)	0.220 (0.227)	0.209** (0.094)	-0.351* (0.208)	-0.088 (0.389)
Craft or trade worker	-0.000 (0.112)	-0.138* (0.077)	-0.313*** (0.081)	0.335* (0.198)	0.129 (0.146)	-0.325 (0.228)	0.423*** (0.155)	0.063 (0.063)	0.208* (0.123)	-0.221 (0.255)
Plant or machine operator	0.229*** (0.057)	0.242* (0.134)	0.213 (0.139)	0.371*** (0.140)	-0.045 (0.129)	0.349 (0.258)	-0.282 (0.256)	-0.029 (0.072)	0.021 (0.113)	-0.213 (0.152)
General laborers	0.034 (0.061)	-0.254* (0.134)	-0.492*** (0.092)	0.130 (0.102)	0.047 (0.107)	0.173 (0.186)	0.229 (0.154)	0.115 (0.072)	-0.122 (0.103)	-0.184 (0.140)
Corporate manager or senior official	0.120* (0.065)	-0.075 (0.110)	0.025 (0.063)	0.218* (0.126)	0.179* (0.105)	0.098 (0.167)	0.271* (0.147)	0.128* (0.069)	0.047 (0.105)	-0.011 (0.063)
Professional	0.252*** (0.050)	0.275*** (0.093)	0.109*** (0.028)	0.288** (0.111)	0.196** (0.098)	0.174 (0.156)	0.340** (0.138)	0.201*** (0.065)	0.206** (0.092)	0.094*** (0.026)
Technician or associate professional	0.252*** (0.070)	0.100 (0.108)	0.130*** (0.040)	0.260** (0.116)	0.289*** (0.095)	0.322** (0.146)	0.261* (0.140)	0.107 (0.069)	0.080 (0.088)	0.109** (0.044)
Missing flag	0.088* (0.045)	-0.057* (0.033)	-0.097*** (0.020)	0.137 (0.109)	0.026 (0.087)	0.103 (0.142)	0.157 (0.141)	-0.003 (0.063)	-0.030 (0.081)	-0.107*** (0.024)
Female (ref.: male)	0.142*** (0.018)	0.176*** (0.022)	0.397*** (0.016)	0.118*** (0.024)	0.188*** (0.021)	0.137*** (0.024)	0.235*** (0.022)	0.198*** (0.021)	0.106*** (0.022)	0.291*** (0.026)
Sex of the student. Missing flag	0.414*** (0.155)	0.518*** (0.178)	0.468** (0.235)	-0.284 (0.233)	-0.203 (0.184)	0.477** (0.211)	0.625*** (0.165)	0.043 (0.211)	0.368* (0.187)	0.522 (0.381)
Student age	0.006 (0.025)	-0.129*** (0.015)	0.115*** (0.023)	-0.219*** (0.026)	0.175*** (0.036)	0.241*** (0.039)	0.356*** (0.039)	0.120*** (0.025)	-0.189*** (0.032)	0.132*** (0.016)
Student age. Missing flag		-1.470*** (0.197)	0.543** (0.239)	-	-	-	-	-	-2.960*** (0.337)	2.410*** (0.158)
Level of education of the father (ref.: did not go to school)										
ISCED 1	0.332** (0.154)	0.016 (0.044)	0.011 (0.040)	-0.021 (0.351)	0.089 (0.276)	-0.061 (0.379)	-0.236 (0.357)	0.482* (0.284)	0.224 (0.162)	0.166** (0.063)
ISCED 2	0.332** (0.155)	0.086* (0.046)	0.042 (0.044)	0.034 (0.351)	0.297 (0.262)	0.024 (0.374)	0.092 (0.308)	0.737** (0.281)	0.319* (0.167)	0.182*** (0.060)
ISCED 3	0.449*** (0.156)	0.272*** (0.048)	0.137*** (0.041)	0.071 (0.344)	0.407 (0.264)	0.056 (0.368)	0.254 (0.304)	0.910*** (0.283)	0.346** (0.166)	0.377*** (0.066)

ISCED 4	0.435***	0.245**	0.201***	0.237	0.333	0.104	0.392	0.893***	0.303*	0.638***
	(0.162)	(0.097)	(0.047)	(0.333)	(0.258)	(0.388)	(0.314)	(0.285)	(0.176)	(0.065)
ISCED 5	0.447***	-0.163	0.293***	0.078	0.443*	0.094	0.342	-	0.433**	-
	(0.161)	(0.128)	(0.058)	(0.347)	(0.264)	(0.377)	(0.308)	-	(0.171)	-
ISCED 6	0.420**	0.263***	0.331***	0.292	0.518**	0.198	0.448	0.988***	0.500***	0.769***
	(0.167)	(0.059)	(0.045)	(0.346)	(0.257)	(0.382)	(0.303)	(0.289)	(0.181)	(0.060)
Missing flag	0.219	-0.016	0.066	0.056	0.200	-0.024	0.237	0.737**	0.211	0.508***
	(0.162)	(0.054)	(0.043)	(0.325)	(0.263)	(0.373)	(0.304)	(0.283)	(0.184)	(0.064)
Level of education of the mother (ref.: did not go to school)										
ISCED 1	-0.067	-0.044	0.057	0.536**	0.371	-0.235	0.148	-0.293	0.147	0.151***
	(0.232)	(0.039)	(0.036)	(0.266)	(0.548)	(0.343)	(0.271)	(0.419)	(0.162)	(0.055)
ISCED 2	0.012	0.134***	0.125***	0.510*	0.442	-0.006	0.164	-0.254	0.155	0.239***
	(0.234)	(0.039)	(0.040)	(0.265)	(0.541)	(0.324)	(0.276)	(0.425)	(0.158)	(0.066)
ISCED 3	0.171	0.418***	0.320***	0.645**	0.608	0.074	0.196	0.055	0.196	0.219***
	(0.236)	(0.041)	(0.036)	(0.263)	(0.545)	(0.325)	(0.286)	(0.425)	(0.167)	(0.055)
ISCED 4	0.156	0.303**	0.405***	0.531*	0.555	-0.194	0.145	0.151	0.138	0.454***
	(0.248)	(0.137)	(0.054)	(0.277)	(0.547)	(0.344)	(0.286)	(0.433)	(0.184)	(0.060)
ISCED 5	0.147	0.260*	0.439***	0.659**	0.628	0.171	0.289	-	0.413**	-
	(0.228)	(0.140)	(0.044)	(0.272)	(0.548)	(0.332)	(0.283)	-	(0.163)	-
ISCED 6	0.271	0.209**	0.635***	0.833***	0.741	0.200	0.365	0.221	0.378**	0.509***
	(0.241)	(0.096)	(0.040)	(0.264)	(0.549)	(0.326)	(0.281)	(0.426)	(0.172)	(0.057)
Missing flag	-0.021	-0.079**	0.185***	0.617**	0.584	-0.024	0.136	-0.146	-0.007	0.275***
	(0.225)	(0.040)	(0.040)	(0.268)	(0.544)	(0.325)	(0.277)	(0.420)	(0.173)	(0.057)
Occupation of the father (ref.: has never worked for pay)										
Small business owner	0.518***	0.223***	0.087*	-0.048	0.475*	0.422***	-0.148	0.438***	0.094	0.166*
	(0.130)	(0.082)	(0.052)	(0.305)	(0.244)	(0.125)	(0.234)	(0.145)	(0.148)	(0.084)
Clerical worker	0.716***	0.285***	0.133***	0.011	0.462*	0.533***	-0.101	0.487***	0.099	0.092
	(0.123)	(0.096)	(0.047)	(0.306)	(0.256)	(0.126)	(0.254)	(0.170)	(0.147)	(0.072)
Service or sales worker	0.455***	0.263***	0.190***	-0.071	0.573**	0.534***	-0.088	0.360**	0.044	0.097
	(0.126)	(0.082)	(0.044)	(0.293)	(0.247)	(0.116)	(0.223)	(0.149)	(0.151)	(0.081)
Skilled agricultural or fishery worker	0.182	0.107	0.012	-0.062	0.447*	0.495***	-0.183	0.379**	-0.085	0.164
	(0.155)	(0.073)	(0.056)	(0.304)	(0.257)	(0.143)	(0.264)	(0.155)	(0.185)	(0.170)
Craft or trade worker	0.477***	0.116	0.151**	-0.132	0.394	0.460***	-0.178	0.385***	0.061	0.118
	(0.127)	(0.080)	(0.067)	(0.303)	(0.246)	(0.116)	(0.237)	(0.141)	(0.151)	(0.110)
Plant or machine operator	0.456***	0.261***	0.282***	-0.259	0.270	0.329***	-0.202	0.336**	0.047	0.450***
	(0.137)	(0.091)	(0.056)	(0.319)	(0.245)	(0.122)	(0.247)	(0.147)	(0.147)	(0.104)
General laborers	0.332**	0.194*	0.078	-0.234	0.292	0.381***	-0.170	0.354**	-0.119	0.226
	(0.136)	(0.099)	(0.051)	(0.317)	(0.240)	(0.123)	(0.245)	(0.158)	(0.183)	(0.174)
Corporate manager or senior official	0.517***	0.539***	0.217***	-0.027	0.531**	0.658***	-0.034	0.514***	0.029	0.250***
	(0.138)	(0.105)	(0.039)	(0.310)	(0.247)	(0.114)	(0.231)	(0.148)	(0.154)	(0.074)
Professional	0.564***	0.491***	0.285***	0.037	0.468*	0.647***	-0.065	0.553***	0.078	0.409***
	(0.128)	(0.082)	(0.046)	(0.309)	(0.250)	(0.116)	(0.230)	(0.146)	(0.153)	(0.072)
Technician or associate professional	0.600***	0.518***	0.208***	-0.035	0.498**	0.571***	-0.067	0.463***	0.116	0.314***
	(0.128)	(0.117)	(0.047)	(0.305)	(0.249)	(0.146)	(0.227)	(0.158)	(0.155)	(0.072)
Missing flag	0.300**	0.118*	0.083**	-0.209	0.320	0.358***	-0.154	0.321**	-0.013	0.050
	(0.130)	(0.067)	(0.039)	(0.315)	(0.242)	(0.110)	(0.225)	(0.141)	(0.144)	(0.074)
Books at home (ref.: 0-10)										

11-25	0.005 (0.043)	0.126*** (0.033)	0.134*** (0.022)	0.019 (0.056)	0.078 (0.062)	0.061 (0.073)	0.308*** (0.060)	0.139*** (0.047)	0.079* (0.044)	0.094*** (0.021)
26-100	0.138*** (0.037)	0.153*** (0.035)	0.246*** (0.021)	0.151*** (0.045)	0.262*** (0.052)	0.201*** (0.062)	0.407*** (0.052)	0.192*** (0.038)	0.244*** (0.045)	0.174*** (0.021)
101-200	0.224*** (0.037)	0.197** (0.089)	0.350*** (0.045)	0.264*** (0.058)	0.366*** (0.053)	0.289*** (0.065)	0.539*** (0.065)	0.268*** (0.047)	0.374*** (0.053)	0.221*** (0.035)
More than 200	0.235*** (0.042)	0.136** (0.060)	0.342*** (0.033)	0.312*** (0.054)	0.516*** (0.057)	0.330*** (0.068)	0.694*** (0.057)	0.398*** (0.049)	0.366*** (0.057)	0.253*** (0.034)
Missing flag	-0.117* (0.060)	-0.046 (0.051)	0.186*** (0.050)	0.354*** (0.111)	0.443*** (0.087)	0.298*** (0.093)	0.623*** (0.092)	0.383*** (0.098)	0.075 (0.102)	0.124*** (0.042)
Time Reading at home (ref.: less than one hr a week)										
1-5 hr a week	0.366*** (0.022)	0.085*** (0.027)	0.131*** (0.022)	0.275*** (0.023)	0.444*** (0.021)	0.446*** (0.027)	0.229*** (0.022)	0.255*** (0.020)	0.118*** (0.029)	0.104*** (0.017)
6-10 hr a week	0.378*** (0.039)	0.077** (0.033)	-0.020 (0.039)	0.381*** (0.036)	0.621*** (0.031)	0.655*** (0.036)	0.479*** (0.062)	0.321*** (0.041)	0.015 (0.043)	0.051* (0.029)
More than 10 hr a week	0.230*** (0.037)	0.053 (0.034)	0.047* (0.026)	0.261*** (0.048)	0.539*** (0.037)	0.584*** (0.043)	0.269*** (0.065)	0.179*** (0.041)	-0.024 (0.054)	-0.025 (0.030)
Missing flag	-0.482*** (0.100)	-0.497*** (0.044)	-0.605*** (0.046)	-0.030 (0.109)	-0.142** (0.057)	-0.378** (0.177)	-0.619*** (0.124)	-0.338*** (0.118)	-0.046 (0.130)	-0.696*** (0.061)
PIRLS 2016 (ref.: PIRLS 2011)	-0.020 (0.024)	-0.148*** (0.042)	-0.148*** (0.034)	0.019 (0.046)	0.096*** (0.029)	0.081* (0.041)	-0.027 (0.033)	-0.220*** (0.033)	-0.099** (0.038)	-0.083*** (0.028)
Constant	-1.443*** (0.435)	1.045*** (0.174)	-1.906*** (0.240)	1.004* (0.585)	-3.837*** (0.618)	-3.713*** (0.528)	-4.940*** (0.639)	-2.893*** (0.557)	1.038** (0.396)	-2.611*** (0.176)
Observations	7,245	13,294	19,628	8,201	11,290	7,279	7,544	9,418	8,727	13,197
R-squared	0.222	0.210	0.250	0.165	0.267	0.224	0.216	0.248	0.191	0.307

Table S1. Influence of attendance to the FSECE on fourth grade students' reading scores, ordinary least squares (continued)

Variables	Russian Federation	Saudi Arabia	Singapore	Slovak Republic	Slovenia	Spain	Sweden	Trinidad and Tobago	United Arab Emirates
Attendance to the FSECE (ref.: no)									
Yes	0.043* (0.023)	0.031 (0.039)	0.115*** (0.015)	0.025 (0.028)	0.040 (0.027)	0.072*** (0.020)	0.066** (0.032)	-0.071** (0.028)	0.015 (0.014)
Attendance to the FSECE. Missing flag	-0.007 (0.043)	-0.097*** (0.036)	-0.084** (0.037)	0.032 (0.047)	-0.070 (0.043)	-0.065* (0.033)	-0.018 (0.064)	0.012 (0.047)	-0.029 (0.018)
Occupation of the mother (ref.: has never worked for pay)									
Small business owner	0.077 (0.087)	-0.080 (0.099)	0.114*** (0.038)	0.398*** (0.116)	0.300*** (0.101)	0.141** (0.060)	0.396*** (0.115)	0.079 (0.070)	0.091** (0.042)
Clerical worker	0.146* (0.087)	-0.080 (0.072)	0.079** (0.034)	0.514*** (0.115)	0.310*** (0.087)	0.214*** (0.060)	0.444*** (0.120)	0.199*** (0.074)	-0.056** (0.024)
Service or sales worker	0.088 (0.083)	-0.269* (0.149)	0.085** (0.039)	0.400*** (0.113)	0.177* (0.093)	0.221*** (0.048)	0.359*** (0.121)	0.038 (0.064)	0.059 (0.048)
Skilled agricultural or fishery worker	-0.053 (0.136)	0.405 (0.397)	0.019 (0.180)	0.253 (0.216)	0.063 (0.162)	0.368*** (0.094)	1.135*** (0.270)	-0.299** (0.141)	0.219 (0.300)
Craft or trade worker	0.008 (0.095)	0.273 (0.251)	0.510*** (0.159)	0.368** (0.144)	0.090 (0.113)	0.062 (0.121)	0.207 (0.215)	0.054 (0.128)	0.186 (0.129)
Plant or machine operator	0.122 (0.098)	0.467 (0.356)	0.127* (0.067)	0.350*** (0.109)	0.213 (0.179)	0.125 (0.095)	0.347** (0.135)	-0.065 (0.113)	-0.021 (0.233)
General laborers	-0.010 (0.089)	0.041 (0.187)	-0.067 (0.083)	0.202* (0.105)	0.231** (0.105)	0.180*** (0.063)	0.372*** (0.139)	-0.099 (0.085)	0.019 (0.118)
Corporate manager or senior official	0.147 (0.090)	-0.087 (0.067)	0.148*** (0.042)	0.493*** (0.119)	0.341*** (0.095)	0.219*** (0.066)	0.387*** (0.124)	0.261*** (0.094)	0.016 (0.034)
Professional	0.152* (0.089)	0.093** (0.038)	0.125*** (0.036)	0.517*** (0.115)	0.383*** (0.087)	0.293*** (0.063)	0.412*** (0.114)	0.299*** (0.073)	0.104*** (0.022)
Technician or associate professional	0.072 (0.085)	0.005 (0.090)	0.181*** (0.041)	0.439*** (0.110)	0.317*** (0.090)	0.265*** (0.067)	0.431*** (0.117)	0.196** (0.084)	0.191*** (0.030)
Missing flag	-0.099 (0.094)	-0.026 (0.035)	0.028 (0.035)	0.288** (0.115)	0.126 (0.084)	0.100 (0.061)	0.203* (0.122)	0.032 (0.070)	-0.093*** (0.017)
Female (ref.: male)	0.208*** (0.019)	0.586*** (0.051)	0.145*** (0.018)	0.065*** (0.018)	0.197*** (0.021)	0.067** (0.026)	0.182*** (0.020)	0.219*** (0.029)	0.238*** (0.026)
Sex of the student. Missing flag	0.934 (0.827)	0.238 (0.174)	0.427** (0.189)	0.783*** (0.273)	0.175 (0.200)	-0.008 (0.211)	0.347** (0.134)	1.066*** (0.229)	0.625*** (0.180)
Student age	0.025 (0.033)	0.020 (0.032)	0.041* (0.023)	-0.128*** (0.031)	-0.009 (0.037)	-0.065** (0.029)	0.132*** (0.039)	-0.248*** (0.016)	0.170*** (0.013)
Student age. Missing flag	-	-0.013	-	-1.709***	--	-	0.017	-2.804***	1.067***
		(0.393)		(0.466)		0.959*** (0.361)	(0.425)	(0.161)	(0.217)
Level of education of the father (ref.: did not go to school)									
ISCED 1	0.107 (0.247)	-0.066 (0.094)	0.221 (0.198)	1.010*** (0.336)	-0.243 (0.564)	0.404*** (0.087)	0.316 (0.229)	-0.178 (0.133)	-0.152*** (0.057)

ISCED 2	0.264*	0.004	0.316	0.497*	-0.083	0.493***	0.389*	-0.082	0.015
	(0.143)	(0.085)	(0.194)	(0.275)	(0.538)	(0.086)	(0.217)	(0.138)	(0.058)
ISCED 3	0.488***	0.064	0.421**	0.788***	-0.048	0.609***	0.471**	0.056	0.056
	(0.144)	(0.088)	(0.203)	(0.254)	(0.538)	(0.090)	(0.213)	(0.135)	(0.052)
ISCED 4	0.502***	0.192*	0.356*	0.868***	-	0.530***	0.519**	0.066	0.156**
	(0.139)	(0.101)	(0.199)	(0.260)		(0.117)	(0.216)	(0.140)	(0.066)
ISCED 5	0.554***	0.553***	0.602***	0.866***	-0.028	0.626***	0.513**	0.128	0.321***
	(0.146)	(0.149)	(0.196)	(0.274)	(0.538)	(0.090)	(0.216)	(0.148)	(0.058)
ISCED 6	0.655***	0.201**	0.700***	0.937***	0.107	0.675***	0.614***	0.191	0.465***
	(0.142)	(0.088)	(0.198)	(0.252)	(0.542)	(0.090)	(0.218)	(0.137)	(0.053)
Missing flag	0.453***	0.013	0.278	0.692***	-0.157	0.428***	0.400*	-0.127	0.208***
	(0.144)	(0.091)	(0.207)	(0.251)	(0.542)	(0.087)	(0.217)	(0.138)	(0.055)
Level of education of the mother (ref.: did not go to school)									
ISCED 1	0.128	-0.051	-0.054	-0.491	0.284	-0.019	-0.197	-0.149	0.129***
	(0.442)	(0.064)	(0.112)	(0.544)	(0.313)	(0.083)	(0.243)	(0.153)	(0.045)
ISCED 2	-0.215	-0.012	0.082	-0.919*	0.460	0.071	0.165	0.121	0.140***
	(0.419)	(0.065)	(0.110)	(0.505)	(0.283)	(0.076)	(0.231)	(0.146)	(0.044)
ISCED 3	-0.063	0.040	0.197*	-0.598	0.836***	0.168*	0.190	0.113	0.210***
	(0.414)	(0.066)	(0.112)	(0.505)	(0.290)	(0.088)	(0.216)	(0.146)	(0.046)
ISCED 4	-0.015	0.074	0.265**	-0.538	-	0.173	0.288	0.136	0.260***
	(0.404)	(0.067)	(0.109)	(0.502)		(0.104)	(0.227)	(0.151)	(0.056)
ISCED 5	0.129	-0.004	0.336***	-0.443	0.951***	0.078	0.310	0.109	0.470***
	(0.410)	(0.161)	(0.106)	(0.522)	(0.297)	(0.096)	(0.224)	(0.142)	(0.050)
ISCED 6	0.276	0.188***	0.449***	-0.427	1.060***	0.257***	0.465**	0.231	0.556***
	(0.407)	(0.068)	(0.108)	(0.508)	(0.293)	(0.080)	(0.223)	(0.145)	(0.047)
Missing flag	0.115	0.048	0.053	-0.768	0.600**	0.007	0.231	-0.051	0.259***
	(0.404)	(0.082)	(0.114)	(0.502)	(0.289)	(0.085)	(0.217)	(0.155)	(0.042)
Occupation of the father (ref.: has never worked for pay)									
Small business owner	0.455***	0.048	0.308**	0.441***	0.245	0.135	0.282*	0.630***	0.375***
	(0.135)	(0.071)	(0.133)	(0.133)	(0.174)	(0.129)	(0.153)	(0.214)	(0.050)
Clerical worker	0.306**	0.076	0.062	0.381***	0.305*	0.119	0.468***	0.526**	0.138***
	(0.134)	(0.080)	(0.148)	(0.141)	(0.166)	(0.139)	(0.175)	(0.232)	(0.048)
Service or sales worker	0.276**	0.124	0.218	0.438***	0.264	0.165	0.286*	0.549***	0.193***
	(0.123)	(0.088)	(0.136)	(0.136)	(0.167)	(0.125)	(0.147)	(0.205)	(0.051)
Skilled agricultural or fishery worker	0.253	-0.087	-0.056	0.324**	0.202	0.085	-0.106	0.503**	0.057
	(0.181)	(0.133)	(0.228)	(0.130)	(0.187)	(0.133)	(0.209)	(0.222)	(0.081)
Craft or trade worker	0.335***	0.070	0.208	0.335**	0.207	0.230**	0.200	0.445**	0.287***
	(0.126)	(0.099)	(0.144)	(0.135)	(0.166)	(0.113)	(0.150)	(0.213)	(0.071)
Plant or machine operator	0.306**	0.285***	0.129	0.387***	0.205	0.068	0.219	0.413*	0.227***
	(0.127)	(0.095)	(0.142)	(0.139)	(0.164)	(0.114)	(0.160)	(0.221)	(0.076)
General laborers	0.171	0.257***	-0.049	0.121	0.153	0.148	0.244	0.337	0.021
	(0.143)	(0.095)	(0.152)	(0.138)	(0.181)	(0.137)	(0.153)	(0.207)	(0.088)
Corporate manager or senior official	0.513***	0.135**	0.329**	0.448***	0.372**	0.181	0.422***	0.630***	0.367***
	(0.132)	(0.064)	(0.135)	(0.137)	(0.171)	(0.116)	(0.149)	(0.215)	(0.050)
Professional	0.423***	0.163**	0.336**	0.459***	0.398**	0.254**	0.413***	0.716***	0.433***
	(0.135)	(0.065)	(0.137)	(0.134)	(0.175)	(0.127)	(0.150)	(0.212)	(0.053)

Technician or associate professional	0.345**	0.162**	0.260*	0.554***	0.459***	0.245*	0.368**	0.714***	0.314***
	(0.157)	(0.062)	(0.140)	(0.135)	(0.171)	(0.132)	(0.152)	(0.219)	(0.057)
Missing flag	0.240*	0.012	0.084	0.265*	0.128	0.061	0.164	0.346	0.111**
	(0.134)	(0.055)	(0.141)	(0.134)	(0.176)	(0.124)	(0.150)	(0.208)	(0.048)
Books at home (ref.: 0-10)									
11-25	0.158***	0.104***	0.022	0.185***	0.280***	0.090**	0.124*	0.054	0.068***
	(0.044)	(0.023)	(0.027)	(0.043)	(0.046)	(0.035)	(0.065)	(0.043)	(0.014)
26-100	0.263***	0.251***	0.142***	0.353***	0.346***	0.261***	0.275***	0.145***	0.155***
	(0.047)	(0.035)	(0.025)	(0.043)	(0.046)	(0.036)	(0.056)	(0.041)	(0.016)
101-200	0.422***	0.201***	0.191***	0.494***	0.549***	0.393***	0.395***	0.192***	0.299***
	(0.052)	(0.060)	(0.033)	(0.042)	(0.051)	(0.037)	(0.058)	(0.047)	(0.028)
More than 200	0.472***	0.267***	0.307***	0.535***	0.609***	0.432***	0.551***	0.325***	0.271***
	(0.051)	(0.073)	(0.032)	(0.052)	(0.052)	(0.042)	(0.056)	(0.056)	(0.026)
Missing flag	0.526***	0.005	0.127	0.135	0.627***	0.342***	0.513***	0.187**	0.094***
	(0.133)	(0.079)	(0.080)	(0.092)	(0.094)	(0.078)	(0.087)	(0.076)	(0.032)
Time Reading at home (ref.: less than one hr a week)									
1-5 hr a week	0.240***	0.078**	0.304***	0.267***	0.238***	0.218***	0.278***	0.168***	0.210***
	(0.024)	(0.038)	(0.018)	(0.020)	(0.025)	(0.021)	(0.024)	(0.027)	(0.014)
6-10 hr a week	0.340***	-0.081	0.473***	0.393***	0.311***	0.261***	0.521***	0.119***	0.138***
	(0.037)	(0.053)	(0.026)	(0.029)	(0.043)	(0.034)	(0.048)	(0.041)	(0.020)
More than 10 hr a week	0.286***	-0.153***	0.427***	0.269***	0.357***	0.142***	0.333***	0.049	0.082***
	(0.037)	(0.047)	(0.027)	(0.037)	(0.044)	(0.039)	(0.054)	(0.044)	(0.022)
Missing flag	-0.936***	-0.544***	-0.369**	-0.739***	-0.262	-	-0.289**	-0.632***	-0.525***
						0.275***			
	(0.207)	(0.078)	(0.150)	(0.172)	(0.177)	(0.092)	(0.115)	(0.098)	(0.046)
PIRLS 2016 (ref.: PIRLS 2011)	-0.013	-0.009	-0.074	0.031	-0.003	-0.006	0.000	-0.081**	-0.053**
	(0.046)	(0.052)	(0.045)	(0.042)	(0.029)	(0.037)	(0.036)	(0.039)	(0.026)
Constant	-1.885***	-0.741**	-	-0.151	-1.903**	-0.815**	-	1.688***	-2.785***
			1.942***				3.502***		
	(0.586)	(0.362)	(0.354)	(0.446)	(0.782)	(0.324)	(0.575)	(0.336)	(0.150)
Observations	9,038	9,248	12,855	11,081	9,011	23,175	9,147	8,125	31,089
R-squared	0.225	0.204	0.312	0.381	0.262	0.188	0.247	0.267	0.314

Notes: Standard errors are in parenthesis and PIRLS recommended practices have been applied. FSECE = First Stage of Early Childhood Education; ISCED = International Standard Classification of Education; PIRLS = Progress in International Reading Literacy Study.

Estimation method: Ordinary Least Squares (OLS).

Dependent variable: Students' standardised scores in reading.

Coefficient: *** significant at 1%, ** significant at 5%, * significant at 10%.

Source: Authors' own calculations.

Table S2. Influence of attendance to the FSECE on fourth grade students' reading scores, instrumental variables

Variables	Australia	Austria	Azerbaijan	French-speaking Belgium	Bulgaria	Canada	Chinese Taipei	Czech Republic	Denmark	Finland
Attendance to the FSECE (ref.: no)										
Yes	0.054 (0.705)	0.820*** (0.301)	-0.117 (0.813)	0.666 (3.242)	0.698 (0.529)	1.477 (1.451)	0.638* (0.346)	2.405** (0.946)	3.125*** (0.874)	0.378** (0.168)
Attendance to the FSECE. Missing flag	-0.067 (0.285)	0.335** (0.153)	0.029 (0.145)	0.499 (2.446)	0.285 (0.273)	0.364 (0.437)	0.023 (0.127)	0.137 (0.111)	1.900*** (0.596)	0.108 (0.106)
Female (ref.: male)	0.185*** (0.019)	0.045* (0.024)	0.166*** (0.022)	0.101*** (0.021)	0.176*** (0.025)	0.130*** (0.020)	0.154*** (0.019)	0.049 (0.030)	0.220*** (0.045)	0.249*** (0.020)
Sex of the student. Missing flag	0.085 (0.184)	0.632** (0.239)	-0.695 (0.982)	0.318 (0.422)	-0.695* (0.390)	0.540*** (0.144)	0.468 (0.324)	0.934*** (0.289)	-0.081 (0.248)	0.837*** (0.177)
Student age	0.125*** (0.027)	-0.221*** (0.032)	0.053* (0.027)	-0.229*** (0.027)	-0.006 (0.043)	0.045 (0.037)	0.205*** (0.042)	-0.248*** (0.066)	-0.151** (0.062)	-0.037 (0.038)
Student age. Missing flag	-	-	0.958** (0.442)	-2.428*** (0.332)	0.627 (0.563)	-0.051 (0.443)	-	-1.046 (1.175)	-	-
Level of education of the father (ref.: did not go to school)										
ISCED 1	-0.053 (0.535)	0.090 (0.323)	-0.069 (0.131)	-0.004 (0.189)	0.132 (0.102)	-0.113 (0.359)	0.431 (0.261)	-0.304 (0.965)	-0.389 (0.285)	0.820* (0.437)
ISCED 2	0.188 (0.528)	0.493 (0.325)	0.140 (0.119)	0.077 (0.248)	0.130 (0.131)	0.099 (0.340)	0.389 (0.247)	-0.225 (0.879)	-0.248 (0.281)	0.929** (0.395)
ISCED 3	0.255 (0.529)	0.535* (0.311)	0.080 (0.116)	0.120 (0.253)	0.267* (0.158)	0.177 (0.318)	0.538** (0.237)	-0.103 (0.921)	-0.086 (0.272)	1.042** (0.396)
ISCED 4	0.283 (0.534)	0.765** (0.331)	0.198* (0.116)	0.052 (0.224)	0.332* (0.167)	0.145 (0.290)	0.657*** (0.239)	0.272 (0.910)	-0.424 (0.281)	1.109*** (0.395)
ISCED 5	0.356 (0.518)	0.598* (0.301)	0.183 (0.132)	-	0.347** (0.167)	0.171 (0.296)	0.582** (0.237)	0.313 (0.904)	-0.076 (0.272)	1.060*** (0.399)
ISCED 6	0.453 (0.513)	0.636** (0.309)	0.348*** (0.122)	0.279 (0.191)	0.507*** (0.158)	0.288 (0.278)	0.710*** (0.235)	0.068 (0.922)	-0.102 (0.272)	1.133*** (0.396)
Missing flag	0.098 (0.531)	0.387 (0.312)	0.154 (0.115)	0.035 (0.254)	0.233 (0.153)	0.247 (0.324)	0.376 (0.246)	0.111 (0.919)	-0.235 (0.255)	0.911** (0.408)
Level of education of the mother (ref.: did not go to school)										
ISCED 1	0.149 (0.691)	-0.052 (0.259)	0.137 (0.176)	-0.023 (0.254)	-0.067 (0.129)	0.153 (0.243)	-0.135 (0.181)	1.134 (1.260)	0.138 (0.312)	0.526 (0.350)
ISCED 2	-0.052 (0.651)	0.067 (0.278)	0.109 (0.165)	0.087 (0.344)	0.022 (0.125)	0.138 (0.337)	-0.260 (0.170)	1.425 (1.326)	0.204 (0.308)	0.810** (0.341)
ISCED 3	0.138 (0.639)	0.364 (0.265)	0.188 (0.169)	0.283 (0.308)	0.227 (0.152)	0.243 (0.275)	-0.113 (0.173)	1.769 (1.344)	0.313 (0.302)	0.987*** (0.336)
ISCED 4	0.143 (0.653)	0.418 (0.271)	0.157 (0.172)	0.210 (0.313)	0.236 (0.156)	0.334 (0.277)	0.057 (0.172)	1.714 (1.352)	0.424 (0.310)	0.952*** (0.345)
ISCED 5	0.189 (0.652)	0.536* (0.271)	0.344* (0.174)	-	0.346** (0.165)	0.364 (0.301)	0.034 (0.203)	1.934 (1.354)	0.329 (0.294)	1.034*** (0.334)
ISCED 6	0.333 (0.668)	0.413 (0.262)	0.450** (0.178)	0.447 (0.419)	0.483*** (0.166)	0.466 (0.318)	0.148 (0.176)	1.866 (1.349)	0.299 (0.292)	1.134*** (0.335)
Missing flag	0.038	0.189	0.161	0.180	0.064	0.103	-0.325*	1.528	0.323	0.799**

	(0.662)	(0.270)	(0.162)	(0.202)	(0.149)	(0.324)	(0.179)	(1.345)	(0.304)	(0.344)
Occupation of the father (ref.: has never worked for pay)										
Small business owner	0.463 (0.290)	0.424** (0.186)	0.206*** (0.072)	0.083 (0.274)	0.423*** (0.123)	-0.082 (0.146)	0.259* (0.137)	0.337 (0.373)	0.556 (0.401)	0.524** (0.210)
Clerical worker	0.643** (0.321)	0.323* (0.186)	0.019 (0.091)	0.080 (0.262)	0.226 (0.140)	-0.155 (0.203)	0.302** (0.139)	0.291 (0.413)	0.803* (0.408)	0.548** (0.219)
Service or sales worker	0.375 (0.290)	0.375** (0.184)	0.187*** (0.070)	0.031 (0.163)	0.334*** (0.123)	-0.063 (0.161)	0.199 (0.141)	0.339 (0.372)	0.615 (0.401)	0.553** (0.223)
Skilled agricultural or fishery worker	0.284 (0.299)	0.456** (0.219)	-0.170 (0.111)	-0.317 (0.254)	0.303** (0.132)	-0.322* (0.180)	0.265* (0.153)	0.188 (0.383)	0.981** (0.402)	0.647*** (0.221)
Craft or trade worker	0.415 (0.292)	0.270 (0.185)	0.087 (0.069)	-0.144 (0.226)	0.289** (0.118)	-0.034 (0.109)	0.197 (0.140)	0.223 (0.371)	0.667* (0.391)	0.429** (0.205)
Plant or machine operator	0.153 (0.297)	0.148 (0.200)	0.180** (0.081)	-0.104 (0.195)	0.243* (0.125)	-0.124 (0.128)	0.152 (0.133)	0.188 (0.366)	0.638 (0.393)	0.521** (0.209)
General laborers	0.287 (0.297)	0.265 (0.179)	-0.029 (0.071)	-0.202 (0.194)	0.302** (0.147)	-0.317** (0.156)	0.096 (0.162)	0.293 (0.364)	0.559 (0.377)	0.370* (0.197)
Corporate manager or senior official	0.504* (0.286)	0.484*** (0.180)	0.303*** (0.090)	0.124 (0.255)	0.286** (0.128)	-0.081 (0.204)	0.264* (0.134)	0.388 (0.385)	0.684* (0.403)	0.636*** (0.214)
Professional	0.557* (0.284)	0.505*** (0.185)	0.205** (0.079)	0.201 (0.208)	0.439*** (0.124)	-0.041 (0.176)	0.262* (0.143)	0.503 (0.374)	0.753* (0.414)	0.664*** (0.214)
Technician or associate professional	0.659** (0.289)	0.507*** (0.180)	0.221** (0.089)	0.098 (0.280)	0.269** (0.127)	0.016 (0.147)	0.292** (0.144)	0.449 (0.379)	0.770* (0.412)	0.445** (0.216)
Missing flag	0.234 (0.288)	0.158 (0.181)	0.023 (0.059)	-0.057 (0.150)	0.176 (0.119)	-0.239* (0.135)	0.121 (0.134)	0.116 (0.377)	0.685* (0.380)	0.318 (0.225)
Books at home (ref.: 0-10)										
11-25	0.121* (0.068)	0.198*** (0.051)	0.187*** (0.032)	0.090** (0.041)	0.185*** (0.059)	0.040 (0.046)	0.143*** (0.038)	0.209** (0.086)	0.224** (0.106)	0.141*** (0.051)
26-100	0.253*** (0.071)	0.425*** (0.050)	0.157*** (0.053)	0.193** (0.092)	0.273*** (0.071)	0.128*** (0.034)	0.249*** (0.038)	0.392*** (0.079)	0.224** (0.085)	0.282*** (0.049)
101-200	0.311*** (0.067)	0.599*** (0.054)	0.211** (0.087)	0.341** (0.158)	0.381*** (0.067)	0.162** (0.070)	0.335*** (0.046)	0.515*** (0.090)	0.273*** (0.091)	0.395*** (0.046)
More than 200	0.402*** (0.069)	0.721*** (0.050)	0.249*** (0.085)	0.478*** (0.137)	0.425*** (0.077)	0.247*** (0.078)	0.396*** (0.048)	0.630*** (0.081)	0.359*** (0.090)	0.507*** (0.047)
Missing flag	0.605*** (0.114)	0.482*** (0.089)	-0.134 (0.084)	0.324 (0.275)	-0.264* (0.144)	0.166 (0.104)	0.182 (0.112)	0.730*** (0.195)	0.228** (0.112)	0.504*** (0.086)
Time Reading at home (ref.: less than one hr a week)										
1-5 hr a week	0.460*** (0.023)	0.166*** (0.026)	0.249*** (0.027)	0.202*** (0.020)	0.190*** (0.031)	0.298*** (0.042)	0.271*** (0.027)	0.267*** (0.037)	0.236*** (0.036)	0.394*** (0.023)
6-10 hr a week	0.643*** (0.028)	0.353*** (0.037)	0.123** (0.047)	0.286*** (0.047)	0.144*** (0.037)	0.493*** (0.056)	0.208*** (0.041)	0.501*** (0.051)	0.415*** (0.087)	0.618*** (0.034)
More than 10 hr a week	0.453*** (0.045)	0.264*** (0.032)	-0.021 (0.048)	0.266*** (0.073)	0.105** (0.042)	0.429*** (0.047)	0.088*** (0.033)	0.354*** (0.073)	0.377*** (0.104)	0.568*** (0.040)
Missing flag	0.011 (0.099)	-0.197* (0.109)	-0.418*** (0.081)	-0.181 (0.116)	-0.597*** (0.142)	-0.481*** (0.092)	-0.397*** (0.134)	-0.586*** (0.213)	0.013 (0.148)	-0.493*** (0.132)
PIRLS 2016 (ref.: PIRLS 2011)	-0.005 (0.139)	0.233** (0.091)	-0.014 (0.066)	-0.013 (0.110)	-0.014 (0.069)	-0.197 (0.225)	0.036 (0.042)	1.457** (0.556)	0.530*** (0.150)	0.036 (0.032)
Constant	-2.679***	-0.149	-1.212***	0.983	-1.576***	-1.521***	-3.439***	-1.661	-2.198**	-3.099***

	(0.436)	(0.425)	(0.390)	(1.679)	(0.437)	(0.444)	(0.495)	(1.655)	(0.860)	(0.459)
Observations	12,467	9,030	10,875	8,350	9,542	41,451	8,619	10,093	8,102	9,536
Stock and Yogo (2005) test of weak instruments	1.666**	9.381***	4.010***	0.625	3.110***	0.978	4.476***	2.854***	2.516***	14.579***

Table S2. Influence of attendance to the FSECE on fourth grade students' reading scores, instrumental variables (continued)

Variables	France	Georgia	Germany	Hong Kong SAR	Hungary	Islamic Republic of Iran	Ireland	Israel	Italy	Lithuania
Attendance to the FSECE (ref.: no)										
Yes	3.410** (1.605)	-0.092 (0.485)	1.822*** (0.448)	-0.854* (0.471)	1.959*** (0.408)	0.506 (0.327)	0.996 (1.534)	1.769*** (0.236)	1.570*** (0.312)	1.678*** (0.552)
Attendance to the FSECE. Missing flag	1.839** (0.841)	-0.029 (0.279)	0.641*** (0.181)	-0.483* (0.248)	0.559*** (0.154)	0.077 (0.081)	0.232 (0.428)	1.011*** (0.164)	0.660*** (0.153)	0.905*** (0.338)
Female (ref.: male)	0.030 (0.038)	0.238*** (0.026)	0.069** (0.027)	0.149*** (0.031)	0.136*** (0.021)	0.282*** (0.031)	0.105*** (0.026)	0.084*** (0.031)	0.066** (0.026)	0.196*** (0.031)
Sex of the student. Missing flag	0.262 (0.280)	0.139 (0.337)	0.251* (0.147)	0.345 (0.255)	0.434** (0.209)	-0.425 (0.667)	0.450** (0.178)	-0.538* (0.323)	0.408** (0.191)	0.054 (0.171)
Student age	-0.388*** (0.065)	0.092*** (0.029)	-0.322*** (0.033)	0.139*** (0.033)	-0.208*** (0.028)	-0.073** (0.031)	0.076 (0.047)	-0.011 (0.042)	0.062 (0.041)	0.130*** (0.037)
Student age. Missing flag	-2.706*** (0.843)	-	-	-	-2.058*** (0.313)	-0.122 (0.436)	-	-	-	-
Level of education of the father (ref.: did not go to school)										
ISCED 1	0.181 (0.242)	0.576 (0.473)	-0.037 (0.184)	-0.007 (0.190)	-0.379 (0.369)	0.053 (0.057)	0.207 (0.446)	0.108 (0.179)	-0.271 (0.225)	-0.356 (0.546)
ISCED 2	0.182 (0.254)	0.581*** (0.167)	0.118 (0.166)	-0.028 (0.190)	-0.291 (0.359)	0.085 (0.060)	0.287 (0.458)	0.280* (0.168)	-0.114 (0.199)	-0.030 (0.533)
ISCED 3	0.152 (0.221)	0.777*** (0.169)	0.291* (0.153)	0.110 (0.202)	-0.122 (0.359)	0.271*** (0.060)	0.388 (0.451)	0.311* (0.161)	0.033 (0.205)	0.103 (0.529)
ISCED 4	0.012 (0.275)	0.845*** (0.167)	-	0.081 (0.207)	-0.126 (0.376)	0.302*** (0.099)	0.470 (0.445)	0.241 (0.174)	-0.017 (0.194)	0.037 (0.533)
ISCED 5	0.301 (0.221)	0.908*** (0.173)	0.177 (0.163)	0.015 (0.208)	-0.059 (0.369)	0.219** (0.084)	0.408 (0.459)	0.365** (0.168)	0.104 (0.210)	0.097 (0.535)
ISCED 6	0.224 (0.222)	0.987*** (0.164)	0.309* (0.166)	0.136 (0.209)	0.046 (0.361)	0.330*** (0.076)	0.533 (0.462)	0.477*** (0.166)	0.086 (0.202)	0.278 (0.538)
Missing flag	-0.139 (0.235)	0.728*** (0.170)	0.210 (0.170)	0.042 (0.195)	-0.246 (0.360)	0.007 (0.073)	0.123 (0.470)	0.314* (0.173)	-0.074 (0.196)	-0.038 (0.529)
Level of education of the mother (ref.: did not go to school)										
ISCED 1	0.717* (0.368)	-0.219 (0.318)	-0.143 (0.169)	0.394** (0.166)	0.502 (0.309)	0.231*** (0.059)	0.280 (0.284)	-0.232 (0.168)	0.476** (0.227)	0.113 (0.729)
ISCED 2	0.408 (0.285)	-0.275 (0.249)	-0.174 (0.170)	0.490*** (0.160)	0.544* (0.310)	0.408*** (0.056)	0.385 (0.286)	0.076 (0.168)	0.710*** (0.213)	0.636 (0.735)
ISCED 3	0.465* (0.248)	-0.165 (0.238)	0.121 (0.145)	0.495*** (0.172)	0.708** (0.309)	0.569*** (0.064)	0.529* (0.290)	0.071 (0.154)	0.829*** (0.210)	0.672 (0.717)
ISCED 4	0.755** (0.349)	-0.129 (0.248)	-	0.709*** (0.210)	0.897*** (0.313)	0.587*** (0.068)	0.514* (0.286)	0.055 (0.173)	0.789*** (0.216)	0.737 (0.725)
ISCED 5	0.707*** (0.264)	-0.011 (0.256)	0.055 (0.170)	0.649*** (0.203)	0.768** (0.323)	0.744*** (0.085)	0.646** (0.289)	0.067 (0.160)	0.829*** (0.212)	0.756 (0.724)
ISCED 6	0.716*** (0.247)	0.135 (0.241)	0.184 (0.167)	0.744*** (0.220)	0.839*** (0.315)	0.737*** (0.098)	0.651** (0.285)	0.107 (0.166)	0.860*** (0.214)	0.827 (0.715)
Missing flag	0.590* (0.331)	-0.171 (0.254)	-0.158 (0.172)	0.282 (0.170)	0.615** (0.306)	0.023 (0.083)	0.369 (0.290)	-0.143 (0.153)	0.639*** (0.214)	0.610 (0.711)

Occupation of the father (ref.: has never worked for pay)										
Small business owner	0.170 (0.347)	0.022 (0.079)	-0.000 (0.219)	0.038 (0.168)	0.347*** (0.111)	0.271*** (0.065)	0.198 (0.151)	0.280** (0.132)	0.453** (0.185)	0.315* (0.169)
Clerical worker	0.306 (0.346)	0.003 (0.092)	0.111 (0.219)	0.082 (0.158)	0.191 (0.122)	0.367*** (0.094)	0.342** (0.139)	0.270* (0.151)	0.512** (0.199)	0.383* (0.201)
Service or sales worker	0.210 (0.363)	-0.048 (0.091)	0.020 (0.219)	-0.007 (0.158)	0.245** (0.109)	0.462*** (0.100)	0.174 (0.170)	0.323** (0.137)	0.536** (0.204)	0.223 (0.158)
Skilled agricultural or fishery worker	0.229 (0.360)	-0.037 (0.116)	0.473* (0.255)	-0.548** (0.240)	0.376*** (0.124)	0.199** (0.099)	0.355** (0.149)	0.013 (0.157)	0.223 (0.220)	0.190 (0.178)
Craft or trade worker	0.021 (0.337)	0.007 (0.092)	-0.069 (0.217)	-0.001 (0.147)	0.304*** (0.112)	0.489*** (0.093)	0.284** (0.136)	0.316** (0.128)	0.478** (0.193)	0.211 (0.153)
Plant or machine operator	-0.002 (0.353)	-0.036 (0.098)	-0.100 (0.229)	-0.034 (0.148)	0.273** (0.121)	0.432*** (0.082)	0.178 (0.155)	0.306** (0.140)	0.471** (0.202)	0.089 (0.179)
General laborers	0.121 (0.358)	-0.153 (0.107)	-0.082 (0.264)	0.008 (0.151)	0.186 (0.125)	0.349*** (0.083)	0.219 (0.154)	0.404*** (0.148)	0.443** (0.217)	0.015 (0.161)
Corporate manager or senior official	0.166 (0.356)	0.079 (0.082)	-0.008 (0.227)	0.021 (0.180)	0.420*** (0.123)	0.432*** (0.106)	0.336** (0.145)	0.430*** (0.138)	0.536*** (0.183)	0.329** (0.161)
Professional	0.232 (0.363)	0.130 (0.082)	0.010 (0.238)	0.010 (0.174)	0.414*** (0.122)	0.421*** (0.111)	0.371** (0.145)	0.419*** (0.138)	0.563*** (0.199)	0.373** (0.182)
Technician or associate professional	0.157 (0.369)	0.269** (0.113)	0.060 (0.239)	0.100 (0.183)	0.271** (0.120)	0.354*** (0.115)	0.253 (0.167)	0.341** (0.147)	0.695*** (0.198)	0.342** (0.154)
Missing flag	0.214 (0.349)	-0.051 (0.079)	0.005 (0.214)	-0.098 (0.148)	0.129 (0.111)	0.226*** (0.085)	0.034 (0.156)	0.245* (0.128)	0.408** (0.193)	0.126 (0.153)
Books at home (ref.: 0-10)										
11-25	0.170* (0.090)	0.075 (0.076)	0.122* (0.066)	0.066 (0.043)	0.127* (0.068)	0.142*** (0.036)	0.061 (0.053)	0.147** (0.059)	0.071 (0.045)	0.075 (0.047)
26-100	0.221*** (0.065)	0.298*** (0.070)	0.319*** (0.059)	0.093** (0.042)	0.287*** (0.071)	0.244*** (0.037)	0.197*** (0.066)	0.237*** (0.056)	0.119*** (0.044)	0.199*** (0.050)
101-200	0.427*** (0.078)	0.376*** (0.069)	0.432*** (0.069)	0.168*** (0.055)	0.343*** (0.084)	0.326*** (0.054)	0.393*** (0.063)	0.302*** (0.065)	0.168*** (0.059)	0.379*** (0.067)
More than 200	0.479*** (0.089)	0.458*** (0.076)	0.485*** (0.084)	0.158** (0.061)	0.467*** (0.072)	0.236*** (0.076)	0.444*** (0.076)	0.389*** (0.061)	0.194*** (0.055)	0.467*** (0.063)
Missing flag	0.243** (0.116)	0.085 (0.112)	0.461*** (0.104)	-0.100 (0.084)	0.914*** (0.091)	0.244** (0.100)	0.139 (0.183)	0.357*** (0.091)	0.121 (0.080)	0.537*** (0.083)
Time Reading at home (ref.: less than one hr a week)										
1-5 hr a week	0.207*** (0.043)	0.297*** (0.029)	0.230*** (0.034)	0.353*** (0.023)	0.183*** (0.026)	0.257*** (0.044)	0.377*** (0.023)	0.205*** (0.024)	0.238*** (0.033)	0.350*** (0.039)
6-10 hr a week	0.352*** (0.062)	0.410*** (0.037)	0.319*** (0.048)	0.353*** (0.038)	0.202*** (0.037)	0.177*** (0.037)	0.490*** (0.048)	0.203*** (0.041)	0.206*** (0.050)	0.430*** (0.059)
More than 10 hr a week	0.336*** (0.081)	0.211*** (0.036)	0.310*** (0.058)	0.216*** (0.050)	0.268*** (0.053)	0.117*** (0.030)	0.574*** (0.042)	0.201*** (0.039)	0.112** (0.052)	0.346*** (0.069)
Missing flag	-0.292 (0.185)	-0.678*** (0.085)	-0.280** (0.137)	-0.550*** (0.201)	-0.294* (0.155)	-0.431*** (0.156)	-0.274** (0.125)	-0.498*** (0.122)	-0.366** (0.143)	-0.195 (0.144)
PIRLS 2016 (ref.: PIRLS 2011)	0.924* (0.467)	0.063 (0.046)	0.560*** (0.135)	-0.167* (0.086)	0.794*** (0.217)	-0.048 (0.050)	-0.259 (0.362)	-0.306*** (0.041)	0.420*** (0.095)	0.116 (0.073)
Constant	0.050 (1.021)	-2.210*** (0.392)	1.434*** (0.424)	-1.678*** (0.440)	-0.634 (0.544)	-0.543* (0.289)	-2.567*** (0.730)	-2.017*** (0.444)	-3.183*** (0.439)	-4.012*** (1.000)

Observations	9,205	10,537	7,959	7,224	9,827	10,143	9,131	8,227	8,129	8,978
Stock and Yogo (2005) test of weak instruments	0.916	3.668***	3.644***	3.735***	5.786***	6.155***	1.357	12.890***	8.124***	3.118***

Table S2. Influence of attendance to the FSECE on fourth grade students' reading scores, instrumental variables (continued)

Variables	Malta	Morocco	Oman	Netherlands	New Zealand	Northern Ireland	Norway	Poland	Portugal	Qatar
Attendance to the FSECE (ref.: no)										
Yes	1.092 (1.053)	1.009 (0.628)	-0.898* (0.505)	0.078 (0.854)	0.749** (0.301)	2.249 (6.134)	0.311 (0.477)	0.144 (0.302)	1.462 (0.939)	0.322 (0.279)
Attendance to the FSECE. Missing flag	0.469 (0.446)	0.199 (0.170)	-0.157* (0.082)	-0.055 (0.260)	0.208 (0.151)	-0.012 (0.298)	0.242 (0.383)	-0.001 (0.114)	0.646 (0.482)	0.004 (0.078)
Female (ref.: male)	0.161*** (0.024)	0.175*** (0.025)	0.393*** (0.017)	0.120*** (0.024)	0.185*** (0.021)	0.140*** (0.026)	0.237*** (0.021)	0.194*** (0.023)	0.123*** (0.032)	0.292*** (0.026)
Sex of the student. Missing flag	0.425*** (0.150)	0.524*** (0.179)	0.433* (0.242)	-0.270 (0.235)	-0.168 (0.186)	0.435* (0.230)	0.659*** (0.188)	0.031 (0.208)	0.424* (0.232)	0.527 (0.379)
Student age	-0.012 (0.028)	-0.122*** (0.016)	0.119*** (0.024)	-0.228*** (0.038)	0.183*** (0.037)	0.240*** (0.038)	0.348*** (0.041)	0.116*** (0.024)	-0.193*** (0.033)	0.128*** (0.017)
Student age. Missing flag	-	-1.395*** (0.214)	0.610** (0.258)	-	-	-	-	-	-2.971*** (0.361)	2.377*** (0.160)
Level of education of the father (ref.: did not go to school)										
ISCED 1	0.358** (0.178)	-0.019 (0.050)	0.006 (0.044)	0.001 (0.345)	0.227 (0.315)	-0.052 (0.394)	-0.204 (0.352)	0.494* (0.275)	0.184 (0.177)	0.164** (0.064)
ISCED 2	0.421** (0.191)	0.041 (0.059)	0.043 (0.044)	0.021 (0.350)	0.411 (0.306)	-0.006 (0.403)	0.112 (0.312)	0.746*** (0.271)	0.237 (0.179)	0.191*** (0.065)
ISCED 3	0.536*** (0.191)	0.202*** (0.072)	0.136*** (0.044)	0.055 (0.343)	0.551* (0.308)	0.045 (0.382)	0.246 (0.300)	0.919*** (0.273)	0.258 (0.181)	0.374*** (0.065)
ISCED 4	0.548** (0.208)	0.080 (0.181)	0.190*** (0.051)	0.258 (0.336)	0.449 (0.298)	0.109 (0.397)	0.378 (0.313)	0.897*** (0.274)	0.196 (0.196)	0.645*** (0.066)
ISCED 5	0.532*** (0.196)	-0.353* (0.190)	0.314*** (0.065)	0.059 (0.348)	0.539* (0.304)	0.115 (0.389)	0.328 (0.304)	-	0.373* (0.204)	-
ISCED 6	0.522** (0.212)	0.168* (0.097)	0.364*** (0.050)	0.270 (0.353)	0.650** (0.306)	0.186 (0.394)	0.432 (0.299)	0.996*** (0.278)	0.402** (0.197)	0.772*** (0.060)
Missing flag	0.311 (0.191)	-0.060 (0.061)	0.104** (0.051)	0.047 (0.324)	0.294 (0.306)	-0.029 (0.394)	0.252 (0.298)	0.756*** (0.275)	0.168 (0.195)	0.493*** (0.062)
Level of education of the mother (ref.: did not go to school)										
ISCED 1	-0.200 (0.248)	-0.094* (0.055)	0.052 (0.036)	0.565* (0.303)	0.235 (0.574)	-0.239 (0.365)	0.119 (0.263)	-0.234 (0.390)	-0.019 (0.220)	0.145** (0.056)
ISCED 2	-0.140 (0.261)	0.063 (0.054)	0.107** (0.041)	0.549* (0.287)	0.287 (0.567)	0.027 (0.353)	0.159 (0.268)	-0.194 (0.393)	-0.018 (0.226)	0.239*** (0.067)
ISCED 3	0.066 (0.277)	0.332*** (0.069)	0.308*** (0.036)	0.697** (0.264)	0.426 (0.575)	0.088 (0.351)	0.223 (0.282)	0.118 (0.392)	0.046 (0.239)	0.211*** (0.055)
ISCED 4	-0.029 (0.343)	0.185 (0.176)	0.456*** (0.057)	0.627* (0.339)	0.355 (0.580)	-0.193 (0.371)	0.178 (0.286)	0.221 (0.401)	-0.025 (0.289)	0.454*** (0.061)
ISCED 5	-0.063 (0.339)	0.217 (0.194)	0.535*** (0.051)	0.702** (0.266)	0.408 (0.576)	0.205 (0.354)	0.310 (0.287)	-	0.144 (0.305)	-
ISCED 6	0.087 (0.336)	0.114 (0.135)	0.775*** (0.056)	0.886*** (0.259)	0.491 (0.581)	0.162 (0.382)	0.417 (0.290)	0.330 (0.395)	0.154 (0.298)	0.524*** (0.062)
Missing flag	-0.223 (0.289)	-0.160*** (0.057)	0.212*** (0.046)	0.645** (0.265)	0.390 (0.565)	-0.100 (0.409)	0.141 (0.277)	-0.112 (0.389)	-0.185 (0.259)	0.236*** (0.061)

Occupation of the father (ref.: has never worked for pay)										
Small business owner	0.543*** (0.132)	0.173** (0.085)	0.105** (0.051)	0.035 (0.304)	0.564** (0.221)	0.553* (0.296)	-0.095 (0.252)	0.444*** (0.148)	0.074 (0.131)	0.170* (0.087)
Clerical worker	0.780*** (0.131)	0.239** (0.110)	0.145*** (0.048)	0.095 (0.308)	0.503** (0.248)	0.564*** (0.142)	-0.056 (0.274)	0.514*** (0.174)	0.091 (0.123)	0.075 (0.075)
Service or sales worker	0.551*** (0.130)	0.207** (0.091)	0.187*** (0.045)	0.009 (0.294)	0.636*** (0.229)	0.611*** (0.168)	-0.035 (0.243)	0.387** (0.151)	0.097 (0.129)	0.115 (0.083)
Skilled agricultural or fishery worker	0.241 (0.169)	0.180** (0.083)	-0.041 (0.059)	-0.020 (0.302)	0.481** (0.236)	0.598** (0.281)	-0.117 (0.284)	0.503*** (0.151)	-0.013 (0.200)	0.136 (0.166)
Craft or trade worker	0.519*** (0.128)	0.085 (0.087)	0.156** (0.066)	-0.060 (0.307)	0.444** (0.223)	0.577** (0.268)	-0.113 (0.254)	0.417*** (0.141)	0.099 (0.135)	0.100 (0.114)
Plant or machine operator	0.535*** (0.136)	0.241** (0.101)	0.270*** (0.057)	-0.222 (0.352)	0.315 (0.225)	0.446* (0.260)	-0.149 (0.263)	0.364** (0.147)	0.122 (0.155)	0.437*** (0.105)
General laborers	0.383*** (0.135)	0.178 (0.107)	0.065 (0.051)	-0.184 (0.323)	0.341 (0.224)	0.488* (0.286)	-0.110 (0.260)	0.393** (0.157)	-0.074 (0.185)	0.202 (0.187)
Corporate manager or senior official	0.477*** (0.165)	0.506*** (0.117)	0.221*** (0.041)	0.059 (0.308)	0.561** (0.226)	0.752*** (0.218)	0.014 (0.251)	0.548*** (0.149)	-0.034 (0.143)	0.261*** (0.076)
Professional	0.624*** (0.133)	0.502*** (0.104)	0.297*** (0.049)	0.135 (0.309)	0.486** (0.233)	0.742*** (0.190)	-0.002 (0.250)	0.603*** (0.145)	0.125 (0.130)	0.454*** (0.075)
Technician or associate professional	0.680*** (0.127)	0.537*** (0.133)	0.246*** (0.049)	0.049 (0.307)	0.573** (0.229)	0.647*** (0.181)	-0.007 (0.241)	0.496*** (0.157)	0.149 (0.138)	0.328*** (0.074)
Missing flag	0.299** (0.134)	0.045 (0.079)	0.071* (0.042)	-0.168 (0.315)	0.329 (0.227)	0.434* (0.258)	-0.129 (0.245)	0.323** (0.139)	-0.056 (0.123)	0.011 (0.077)
Books at home (ref.: 0-10)										
11-25	-0.013 (0.047)	0.076 (0.051)	0.146*** (0.025)	0.037 (0.058)	0.083 (0.063)	0.063 (0.077)	0.310*** (0.064)	0.140*** (0.047)	0.147*** (0.055)	0.089*** (0.023)
26-100	0.122** (0.050)	0.139*** (0.042)	0.254*** (0.023)	0.173*** (0.052)	0.243*** (0.060)	0.218** (0.083)	0.401*** (0.061)	0.197*** (0.038)	0.290*** (0.060)	0.175*** (0.020)
101-200	0.223*** (0.049)	0.219** (0.101)	0.352*** (0.045)	0.294*** (0.070)	0.352*** (0.056)	0.334** (0.135)	0.528*** (0.076)	0.277*** (0.048)	0.404*** (0.062)	0.215*** (0.037)
More than 200	0.238*** (0.054)	0.098 (0.081)	0.375*** (0.042)	0.339*** (0.082)	0.520*** (0.058)	0.326*** (0.073)	0.684*** (0.075)	0.414*** (0.051)	0.338*** (0.078)	0.261*** (0.034)
Missing flag	-0.268 (0.167)	-0.030 (0.057)	0.137** (0.058)	0.369** (0.172)	0.420*** (0.096)	0.322** (0.149)	0.559*** (0.105)	0.358*** (0.099)	0.071 (0.108)	0.148*** (0.048)
Time Reading at home (ref.: less than one hr a week)										
1-5 hr a week	0.365*** (0.024)	0.090*** (0.029)	0.142*** (0.023)	0.275*** (0.023)	0.440*** (0.023)	0.447*** (0.031)	0.230*** (0.023)	0.259*** (0.022)	0.146*** (0.034)	0.100*** (0.018)
6-10 hr a week	0.350*** (0.052)	0.080** (0.037)	-0.016 (0.042)	0.382*** (0.036)	0.625*** (0.034)	0.637*** (0.055)	0.487*** (0.069)	0.329*** (0.043)	-0.031 (0.072)	0.051* (0.029)
More than 10 hr a week	0.215*** (0.044)	0.054 (0.034)	0.062** (0.030)	0.260*** (0.048)	0.528*** (0.039)	0.564*** (0.079)	0.276*** (0.069)	0.178*** (0.041)	0.032 (0.072)	-0.025 (0.029)
Missing flag	-0.511*** (0.106)	-0.485*** (0.047)	-0.605*** (0.049)	-0.036 (0.108)	-0.130** (0.063)	-0.376** (0.178)	-0.622*** (0.135)	-0.340*** (0.116)	-0.078 (0.169)	-0.697*** (0.062)
PIRLS 2016 (ref.: PIRLS 2011)	-0.368 (0.325)	-0.150*** (0.042)	-0.087** (0.039)	-0.077 (0.395)	0.001 (0.048)	0.082** (0.041)	-0.079 (0.092)	-0.164 (0.119)	-0.174*** (0.060)	-0.116** (0.047)
Constant	-1.222*** (0.434)	0.824*** (0.239)	-1.915*** (0.247)	1.152* (0.587)	-4.045*** (0.627)	-3.714*** (0.630)	-4.885*** (0.639)	-2.962*** (0.538)	0.579 (0.513)	-2.657*** (0.178)

Observations	7,245	13,294	19,628	8,201	11,290	7,279	7,544	9,418	8,727	13,197
Stock and Yogo (2005) test of weak instruments	2.239***	2.947***	6.703***	1.988**	3.940***	0.851	3.062***	9.944***	1.776**	7.625***

Table S2. Influence of attendance to the FSECE on fourth grade students' reading scores, instrumental variables (continued)

Variables	Russian Federation	Saudi Arabia	Singapore	Slovak Republic	Slovenia	Spain	Sweden	Trinidad and Tobago	United Arab Emirates
Attendance to the FSECE (ref.: no)									
Yes	1.272*** (0.340)	-0.000 (0.893)	1.543*** (0.344)	1.439*** (0.538)	1.135** (0.431)	1.426** (0.585)	1.088*** (0.364)	-1.069 (1.012)	1.045** (0.397)
Attendance to the FSECE. Missing flag	0.784*** (0.233)	-0.103 (0.100)	0.712*** (0.191)	0.266** (0.104)	0.670** (0.295)	0.824** (0.391)	0.753** (0.301)	-0.511 (0.530)	0.208** (0.091)
Female (ref.: male)	0.208*** (0.022)	0.586*** (0.052)	0.158*** (0.022)	0.068*** (0.022)	0.187*** (0.024)	0.065** (0.029)	0.168*** (0.024)	0.231*** (0.032)	0.235*** (0.027)
Sex of the student. Missing flag	0.853* (0.443)	0.225 (0.187)	0.502** (0.204)	1.024*** (0.316)	0.231 (0.208)	-0.023 (0.213)	0.401*** (0.142)	1.117*** (0.259)	0.582*** (0.197)
Student age	0.024 (0.039)	0.018 (0.031)	0.083*** (0.028)	-0.108*** (0.034)	-0.009 (0.042)	-0.066* (0.034)	0.117*** (0.039)	-0.223*** (0.038)	0.135*** (0.021)
Student age. Missing flag	-	-0.040 (0.401)	-	-1.408*** (0.446)	-	-0.889** (0.432)	-0.189 (0.430)	-3.105*** (0.312)	0.782*** (0.279)
Level of education of the father (ref.: did not go to school)									
ISCED 1	0.890** (0.356)	-0.066 (0.093)	0.243 (0.235)	1.150*** (0.341)	-0.252 (0.467)	0.383*** (0.111)	0.330 (0.270)	-0.131 (0.155)	-0.129* (0.065)
ISCED 2	0.850*** (0.219)	0.005 (0.084)	0.349 (0.230)	0.415 (0.347)	-0.090 (0.426)	0.463*** (0.116)	0.247 (0.265)	-0.075 (0.153)	0.026 (0.069)
ISCED 3	1.020*** (0.205)	0.066 (0.087)	0.437* (0.246)	0.633* (0.327)	-0.053 (0.428)	0.559*** (0.123)	0.296 (0.262)	0.090 (0.156)	0.063 (0.060)
ISCED 4	1.021*** (0.200)	0.193* (0.100)	0.386 (0.242)	0.676** (0.338)	-	0.515*** (0.153)	0.325 (0.263)	0.056 (0.159)	0.138* (0.073)
ISCED 5	1.100*** (0.215)	0.552*** (0.182)	0.577** (0.242)	0.700* (0.362)	-0.030 (0.426)	0.567*** (0.122)	0.331 (0.259)	0.134 (0.163)	0.301*** (0.063)
ISCED 6	1.203*** (0.205)	0.201** (0.087)	0.695*** (0.243)	0.752** (0.328)	0.091 (0.431)	0.623*** (0.121)	0.405 (0.265)	0.125 (0.167)	0.452*** (0.059)
Missing flag	1.055*** (0.226)	0.013 (0.101)	0.278 (0.249)	0.506 (0.320)	-0.103 (0.442)	0.443*** (0.115)	0.270 (0.264)	-0.075 (0.164)	0.167*** (0.056)
Level of education of the mother (ref.: did not go to school)									
ISCED 1	0.338 (0.477)	-0.056 (0.065)	-0.123 (0.142)	-0.276 (0.552)	0.491 (0.310)	-0.146 (0.127)	-0.302 (0.296)	-0.211 (0.170)	0.195*** (0.053)
ISCED 2	0.003 (0.459)	-0.024 (0.068)	-0.023 (0.137)	-0.721 (0.600)	0.552* (0.288)	-0.067 (0.132)	0.069 (0.279)	0.056 (0.174)	0.159*** (0.052)
ISCED 3	0.179 (0.455)	0.031 (0.074)	0.026 (0.144)	-0.461 (0.576)	0.922*** (0.287)	0.003 (0.147)	0.047 (0.269)	0.045 (0.167)	0.245*** (0.050)
ISCED 4	0.134 (0.447)	0.083 (0.065)	0.063 (0.138)	-0.404 (0.577)	-	-0.013 (0.173)	0.149 (0.277)	0.087 (0.185)	0.286*** (0.063)
ISCED 5	0.292 (0.455)	-0.009 (0.166)	0.145 (0.144)	-0.234 (0.592)	1.050*** (0.291)	-0.137 (0.166)	0.192 (0.280)	0.125 (0.163)	0.491*** (0.057)
ISCED 6	0.418	0.201***	0.264*	-0.269	1.243***	0.036	0.298	0.356**	0.586***

	(0.448)	(0.064)	(0.146)	(0.580)	(0.287)	(0.173)	(0.283)	(0.165)	(0.055)
Missing flag	0.217	0.039	-0.055	-0.655	0.664**	-0.110	0.042	-0.053	0.229***
	(0.444)	(0.083)	(0.143)	(0.574)	(0.285)	(0.121)	(0.270)	(0.175)	(0.051)
Occupation of the father (ref.: has never worked for pay)									
Small business owner	0.413***	0.045	0.262*	0.617***	0.202	0.219*	0.428**	0.467	0.409***
	(0.152)	(0.072)	(0.150)	(0.154)	(0.211)	(0.131)	(0.171)	(0.322)	(0.055)
Clerical worker	0.264*	0.072	0.172	0.607***	0.308	0.165	0.532***	0.400	0.200***
	(0.154)	(0.080)	(0.172)	(0.163)	(0.201)	(0.145)	(0.195)	(0.335)	(0.059)
Service or sales worker	0.226	0.125	0.195	0.590***	0.215	0.288**	0.389**	0.366	0.263***
	(0.153)	(0.096)	(0.153)	(0.166)	(0.200)	(0.132)	(0.167)	(0.334)	(0.058)
Skilled agricultural or fishery worker	0.240	-0.083	-0.070	0.535***	0.206	0.239*	0.210	0.216	0.069
	(0.193)	(0.143)	(0.241)	(0.154)	(0.214)	(0.141)	(0.222)	(0.374)	(0.103)
Craft or trade worker	0.277*	0.063	0.227	0.562***	0.202	0.350***	0.349**	0.251	0.336***
	(0.142)	(0.101)	(0.155)	(0.142)	(0.195)	(0.123)	(0.166)	(0.338)	(0.074)
Plant or machine operator	0.191	0.288***	0.142	0.614***	0.163	0.170	0.383**	0.198	0.220**
	(0.149)	(0.098)	(0.157)	(0.147)	(0.191)	(0.129)	(0.173)	(0.361)	(0.096)
General laborers	0.158	0.265***	0.026	0.237	0.112	0.266*	0.341**	0.104	-0.021
	(0.155)	(0.087)	(0.149)	(0.147)	(0.213)	(0.147)	(0.161)	(0.329)	(0.085)
Corporate manager or senior official	0.408***	0.132*	0.279*	0.593***	0.342	0.250*	0.553***	0.517	0.401***
	(0.152)	(0.067)	(0.150)	(0.172)	(0.214)	(0.131)	(0.170)	(0.315)	(0.056)
Professional	0.363**	0.186***	0.370**	0.654***	0.399*	0.326**	0.540***	0.592*	0.487***
	(0.156)	(0.063)	(0.143)	(0.162)	(0.207)	(0.137)	(0.170)	(0.326)	(0.058)
Technician or associate professional	0.175	0.164***	0.282*	0.707***	0.457**	0.354**	0.506***	0.580*	0.401***
	(0.172)	(0.061)	(0.152)	(0.157)	(0.199)	(0.143)	(0.171)	(0.332)	(0.060)
Missing flag	0.126	0.005	0.075	0.499***	0.054	0.165	0.249	0.183	0.114**
	(0.148)	(0.060)	(0.142)	(0.149)	(0.201)	(0.134)	(0.166)	(0.306)	(0.056)
Books at home (ref.: 0-10)									
11-25	0.149***	0.104***	0.001	0.195***	0.228***	0.017	0.140**	0.073	0.070***
	(0.048)	(0.023)	(0.034)	(0.043)	(0.054)	(0.062)	(0.067)	(0.056)	(0.015)
26-100	0.215***	0.254***	0.087**	0.373***	0.316***	0.162**	0.260***	0.177***	0.166***
	(0.050)	(0.035)	(0.034)	(0.042)	(0.047)	(0.065)	(0.056)	(0.051)	(0.018)
101-200	0.377***	0.203***	0.073	0.516***	0.533***	0.239***	0.388***	0.202***	0.281***
	(0.056)	(0.060)	(0.053)	(0.046)	(0.052)	(0.082)	(0.056)	(0.061)	(0.031)
More than 200	0.482***	0.268***	0.201***	0.555***	0.579***	0.314***	0.530***	0.366***	0.233***
	(0.057)	(0.072)	(0.044)	(0.054)	(0.054)	(0.081)	(0.059)	(0.069)	(0.039)
Missing flag	0.464***	0.006	0.042	0.284***	0.525***	0.110	0.444***	0.196**	0.138***
	(0.119)	(0.089)	(0.080)	(0.107)	(0.114)	(0.132)	(0.090)	(0.090)	(0.043)
Time Reading at home (ref.: less than one hr a week)									
1-5 hr a week	0.254***	0.078**	0.306***	0.250***	0.237***	0.243***	0.273***	0.162***	0.209***
	(0.026)	(0.038)	(0.025)	(0.023)	(0.028)	(0.024)	(0.027)	(0.032)	(0.016)
6-10 hr a week	0.386***	-0.082	0.465***	0.390***	0.267***	0.262***	0.569***	0.117**	0.120***
	(0.041)	(0.053)	(0.034)	(0.030)	(0.052)	(0.041)	(0.059)	(0.044)	(0.025)
More than 10 hr a week	0.343***	-0.151***	0.425***	0.263***	0.426***	0.199***	0.344***	0.078	0.062**
	(0.047)	(0.047)	(0.032)	(0.041)	(0.057)	(0.047)	(0.057)	(0.055)	(0.023)
Missing flag	-1.066***	-0.544***	-0.232	-0.707***	-0.256	-0.176	-0.301**	-0.654***	-0.517***

PIRLS 2016 (ref.: PIRLS 2011)	(0.187)	(0.079)	(0.163)	(0.150)	(0.181)	(0.126)	(0.115)	(0.119)	(0.055)
	0.239***	-0.007	0.051	0.798***	-0.085**	-0.045	-0.103**	0.306	-0.159***
Constant	(0.075)	(0.068)	(0.054)	(0.299)	(0.041)	(0.047)	(0.051)	(0.389)	(0.051)
	-3.363***	-0.728*	-2.996***	-1.083*	-2.407***	-1.341***	-3.546***	1.875***	-2.701***
	(0.830)	(0.384)	(0.407)	(0.581)	(0.837)	(0.474)	(0.620)	(0.411)	(0.186)
Observations	9,038	9,248	12,855	11,081	9,011	23,175	9,147	8,125	31,089
Stock and Yogo (2005) test of weak instruments	6.704***	2.369***	4.220***	4.499***	4.189***	3.411***	6.809***	1.820**	8.139***

Notes: Standard errors are in parenthesis and PIRLS recommended practices have been applied. FSECE = First Stage of Early Childhood Education; ISCED = International Standard Classification of Education; PIRLS = Progress in International Reading Literacy Study.

Estimation method: Two-Stage Least Squares (2SLS). The instrument is mother's occupation. The null hypothesis of the Stock and Yogo (2005) test of weak instruments is that the instrument is weak.

Dependent variable: Students' standardised scores in reading.

Coefficient: *** significant at 1%, ** significant at 5%, * significant at 10%.

Source: Authors' own calculations.