



Table of Contents

EXECUTIVE SUMMARY	13
INTRODUCTION TO PISA	17
READER'S GUIDE	23
CHAPTER 1 MODERATING THE IMPACT OF SOCIO-ECONOMIC BACKGROUND ON EDUCATIONAL OUTCOMES	25
Interpreting gaps and dispersion in student performance	27
Family and socio-economic background	29
Socio-economic background, underlying social and economic inequality and mean performance at the level of the education system	30
Looking ahead	33
CHAPTER 2 THREE PERSPECTIVES ON EDUCATIONAL EQUITY AND EQUALITY	37
Equality in learning outcomes	38
▪ Relative performance gaps within countries.....	38
▪ Share of the students failing to reach a baseline level of proficiency.....	41
Equity in the distribution of educational resources	41
Equity in learning regardless of student background	43
▪ Family and socio-economic background.....	43
▪ Family structure.....	45
▪ School location and variation in performance across geographical areas.....	46
CHAPTER 3 LEARNING OUTCOMES AND SOCIO-ECONOMIC BACKGROUND	51
Students' socio-economic and cultural status and performance	52
The socio-economic gradient: an approach to equity in PISA	52
A comparative perspective on socio-economic gradients	57
Student resilience in PISA: the proportion of disadvantaged students who succeed in PISA	62
CHAPTER 4 LEARNING OUTCOMES OF STUDENTS WITH AN IMMIGRANT BACKGROUND	65
Students with an immigrant background	66
The size of the immigrant-background student population and mean performance of the system	66
Performance gaps across immigrant status	70
First-generation students and age of arrival	74
Immigrant status and home language	75
Performance, immigrant status and country of origin	77
Immigrant status and school resources	79
CHAPTER 5 SCHOOL SYSTEMS AND THE IMPACT OF SOCIO-ECONOMIC BACKGROUND	83
The relationship between performance and socio-economic background	84
Performance differences within and between schools	84
Differences in the socio-economic background of students and schools	86



Performance differences and the socio-economic background of students and schools86

Predicted and actual performance of students in different socioeconomic contexts92

Performance, socio-economic background and the role of parents95

Performance, socio-economic background and participation in pre-primary education95

POLICY IMPLICATIONS101

Patterns in the relationship between performance and socio-economic background101

A disproportionate number of low-performing students105

Different slopes and strengths of socio-economic gradients108

- Gentle slopes and weak-versus-strong gradients108
- Steep slopes and weak-versus-strong gradients110

Different socio-economic profiles112

Differing gradients across schools113

Differing gradients within schools114

REFERENCES123

ANNEX A TECHNICAL BACKGROUND125

Annex A1: Construction of reading scales and indices from the student, school and parent context questionnaires126

Annex A2: The PISA target population, the PISA samples and the definition of schools134

Annex A3: Standard errors, significance tests and subgroup comparisons147

Annex A4: Quality assurance149

ANNEX B TABLES OF RESULTS151

Annex B1: Results for countries and economies152

Annex B2: Results for regions within countries198

ANNEX C THE DEVELOPMENT AND IMPLEMENTATION OF PISA – A COLLABORATIVE EFFORT215

This book has...



StatLinks 
**A service that delivers Excel® files
 from the printed page!**

Look for the *StatLinks* at the bottom left-hand corner of the tables or graphs in this book. To download the matching Excel® spreadsheet, just type the link into your Internet browser, starting with the <http://dx.doi.org> prefix. If you're reading the PDF e-book edition, and your PC is connected to the Internet, simply click on the link. You'll find *StatLinks* appearing in more OECD books.



BOXES

Box II.A	Key features of PISA 2009.....	19
Box II.1.1	Interpreting differences in PISA scores: How large a gap?.....	27
Box II.1.2	Summarising student and school background characteristics	29
Box II.3.1	How to read Figure II.3.1	53

FIGURES

Figure II.A	A map of PISA countries and economies.....	21
Figure II.1.1	Variation of reading performance within countries	28
Figure II.1.2	Reading performance and socio-economic profile.....	31
Figure II.1.3	Income inequality in the population and strength of the relationship between socio-economic background and performance	32
Figure II.1.4	Summary of PISA measures of educational equity.....	34
Figure II.2.1	Performance differences among the highest- and lowest-achieving students.....	39
Figure II.2.2	Percentage of students below proficiency Level 2 and at Level 3 or above.....	40
Figure II.2.3	Relationship between school average socio-economic background and school resources.....	42
Figure II.2.4	Percentage of variance in reading performance explained by various aspects of family background.....	44
Figure II.2.5	Reading performance difference between students from single-parent families and those from other types of families	47
Figure II.2.6	Reading performance, by school location	48
Figure II.3.1	Socio-economic background and reading performance in the OECD area.....	53
Figure II.3.2	Measures of the relationship between socio-economic background and reading performance	55
Figure II.3.3	Strength of the socio-economic gradient and reading performance.....	58
Figure II.3.4	Slope of the socio-economic gradient and reading performance.....	59
Figure II.3.5	Countries' mean reading performance, observed and after accounting for socio-economic profile.....	61
Figure II.3.6	Percentage of resilient students among disadvantaged students.....	63
Figure II.4.1	Percentage of students with an immigrant background.....	67
Figure II.4.2	Students' reading performance, by percentage of students with an immigrant background	68
Figure II.4.3	Performance difference between students with and without an immigrant background, by percentage of students with an immigrant background.....	69
Figure II.4.4	Reading performance, by immigrant status	70
Figure II.4.5	Reading performance by immigrant status, before and after accounting for socio-economic background.....	71
Figure II.4.6	Percentage of students at proficiency Level 3 or above, by immigrant status.....	73
Figure II.4.7	Percentage of students below proficiency Level 2, by immigrant status	73
Figure II.4.8	Performance differences among first-generation students, by age of arrival	74
Figure II.4.9	Percentage of students, by immigrant status and language spoken at home	76
Figure II.4.10	Immigrant status, language spoken at home and reading performance.....	77
Figure II.4.11	Reading performance in host countries by students with an immigrant background from OECD countries	78
Figure II.4.12	Reading performance in host countries by students with an immigrant background from non-OECD countries	79
Figure II.4.13	Characteristics of schools attended by students with and without an immigrant background.....	80
Figure II.5.1	Variation in reading performance between and within schools	85
Figure II.5.2	Range of students' socio-economic background.....	87
Figure II.5.3	Range of schools' socio-economic background	88
Figure II.5.4	Variation in reading performance explained by students' and schools' socio-economic background	89
Figure II.5.5	Slope of the socio-economic gradient between and within schools.....	91
Figure II.5.6	Percentage of students in disadvantaged, mixed and advantaged schools, by students' socio-economic background.....	93
Figure II.5.7	Difference between observed and predicted performance in disadvantaged, mixed and advantaged schools, by students' socio-economic background	94



TABLE OF CONTENTS

Figure II.5.8	Parents' educational support at home and student performance, before and after accounting for socio-economic background.....	96
Figure II.5.9	Performance difference between students who had attended pre-primary school for more than one year and those who had not.....	97
Figure II.B	Summary of students' and schools' socio-economic background and performance.....	102
Figure II.C	Relationship between school performance and schools' socio-economic background in Peru, Albania, Indonesia and Tunisia.....	106
Figure II.D	Relationship between school performance and schools' socio-economic background in Luxembourg, Israel, Austria and Dubai (UAE).....	107
Figure II.E	Relationship between school performance and schools' socio-economic background in United States and Belgium.....	108
Figure II.F	Relationship between school performance and schools' socio-economic background in Shanghai-China, Korea, Finland and Canada.....	109
Figure II.G	Relationship between school performance and schools' socio-economic background in Iceland and Estonia.....	109
Figure II.H	Relationship between school performance and schools' socio-economic background in Australia, New Zealand, Germany and Belgium.....	110
Figure II.I	Relationship between school performance and schools' socio-economic background in Dubai (UAE), Mexico and Thailand.....	111
Figure II.J	Relationship between school performance and schools' socio-economic background in Finland and Panama.....	112
Figure II.K	Relationship between school performance and schools' socio-economic background in Spain and Mexico.....	112
Figure II.L	Relationship between school performance and schools' socio-economic background in the Czech Republic, Germany, Norway and Poland.....	113
Figure II.M	Relationship between school performance and schools' socio-economic background in Greece and Portugal.....	114
Figure II.N	Relationship between school performance and schools' socio-economic background in Norway and New Zealand.....	115
Figure II.O	Relationship between school performance and schools' socio-economic background.....	116
Figure A3.1	Labels used in a two-way table.....	147

TABLES

Table II.A	Summary of PISA measures of educational equity.....	16
Table A1.1	Levels of parental education converted into years of schooling.....	129
Table A1.2	A multilevel model to estimate grade effects in reading, accounting for some background variables.....	130
Table A2.1	PISA target populations and samples.....	136
Table A2.2	Exclusions.....	138
Table A2.3	Response rates.....	140
Table A2.4a	Percentage of students at each grade level.....	143
Table A2.4b	Percentage of students at each grade level, by gender.....	144
Table A2.5	Percentage of students and mean scores in reading, mathematics and science, according to whether students are in or out of the regular education system in Argentina.....	146
Table II.1.1	The PISA index of economic, social and cultural status (ESCS), mean score and variation in reading performance.....	152
Table II.1.2	Strength of the relationship among student performance and socio-economic background and Gini Index.....	153
Table II.2.1	Performance by proficiency level in reading and socio-economic background.....	154
Table II.2.2	Schools' average socio-economic background and resources.....	156
Table II.2.3	Characteristics of schools attended by advantaged and disadvantaged students.....	157
Table II.2.4	Relationship between student-level factors and reading performance.....	159
Table II.2.5	Percentage of students and reading performance, by family structure.....	161
Table II.2.6	Reading performance and socio-economic background, by school location.....	162
Table II.3.1	PISA index of economic, social and cultural status and reading performance, by national quarters of this index.....	165



Table II.3.2	Relationship between reading performance and socio-economic background.....	167
Table II.3.3	Percentage of resilient students and disadvantaged low achievers among all students, by gender.....	169
<hr/>		
Table II.4.1	Percentage of students and reading performance, by immigrant status.....	170
Table II.4.2	Percentage of students at each proficiency level in reading, by immigrant status.....	173
Table II.4.3	Percentage of first-generation students and reading performance, by age of arrival in the host country.....	175
Table II.4.4	Percentage of students and reading performance, by immigrant status and language spoken at home.....	177
Table II.4.5	Performance of students with an immigrant background in the host country, by country of origin.....	182
Table II.4.6	Characteristics of schools attended by students with and without an immigrant background.....	183
<hr/>		
Table II.5.1	Between- and within-school variance in reading performance.....	185
Table II.5.2	Decomposition of the gradient of the PISA index of economic, social and cultural status (ESCS) into between- and within-school components.....	186
Table II.5.3	Parents' educational support at home at the beginning of primary school and student performance, before and after accounting for socio-economic background.....	188
Table II.5.4	Parents' educational support at home at age 15 and student performance, before and after accounting for socio-economic background.....	189
Table II.5.5	Pre-primary school attendance, performance in reading and students' socio-economic background.....	190
Table II.5.6	Relationship between pre-primary school attendance and performance, by quality of pre-primary school education.....	192
Table II.5.7	Relationship between performance, pre-primary school attendance and socio-economic background.....	193
Table II.5.8	Relationship between performance, pre-primary school attendance and immigrant status.....	194
Table II.5.9	Relationship between pre-primary school attendance and performance, by immigrant status and quality of pre-primary school education.....	195
Table II.5.10	Residuals in performance for the bottom and top quarters of the PISA index of economic, social and cultural status (ESCS), by schools' socio-economic background.....	196
<hr/>		
Table S.II.a	Performance by proficiency level in reading and socio-economic background.....	198
Table S.II.b	Schools' average socio-economic background and resources.....	199
Table S.II.c	Reading performance and socio-economic background, by school location.....	201
Table S.II.d	PISA index of economic, social and cultural status and reading performance, by quarters of this index.....	204
Table S.II.e	Relationship between reading performance and socio-economic background.....	206
Table S.II.f	Percentage of students and reading performance, by immigrant status.....	208
Table S.II.g	Performance differences between students with and without an immigrant background, by immigrant status.....	210
Table S.II.h	Characteristics of schools attended by students with and without an immigrant background.....	211
Table S.II.i	Between- and within-school variance in reading performance.....	213