

INTERPRETING PISA DATA

Jonathan Wright

Learning Analysis, Scottish Government
The Future of Education Data in Scotland
13 June 2016

Outline

- PISA: What it is and Scotland's participation
- What data PISA collects
- What Scottish Government and the OECD publish
- Examples of analysis and potential opportunities

Programme for International Student Assessment (PISA) #1

- Run by the OECD in 65 countries and “economies”
- Survey of 15 year-olds
- Scotland is an “adjudicated region” and can publish its own data
- Participation since inception – 7 three-yearly cycles beginning in 2000
- Each cycle has a main domain. 2012: Maths, 2015: Science, 2018: Reading
- “Innovative domains” 2015: Collaborative Problem Solving, 2018: Global Competence
- 2015 data published in December 2016

PISA #2

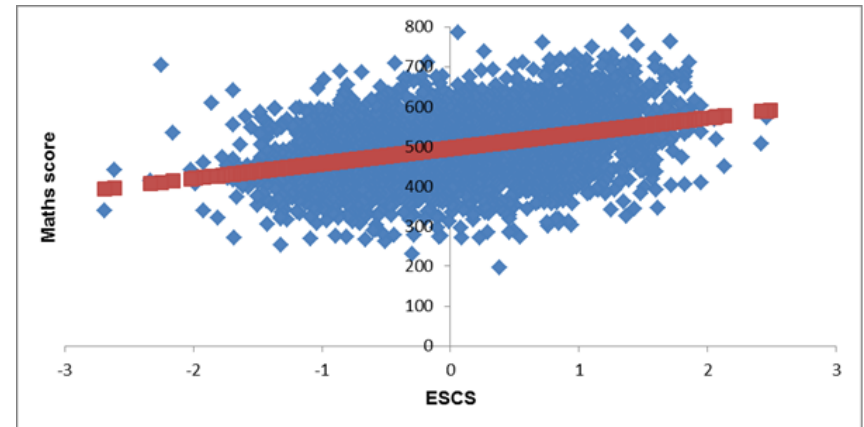
- 2 hour assessment plus 30-minute background questionnaire
- In 2012: 111 schools, 2945 students
- Additional questionnaire options: 2015 Parents, 2018 Teachers
- School questionnaire: school policies and challenges
- System information

PISA Content #1

- Assessment data, including plausible values
 - Proficiency levels
 - Subscales, e.g. of Maths in 2012
- Demographics
 - Age, migration, home language
- Social background
 - Parental jobs
 - Parental education
 - Home possessions: “wealth” (consumer goods), educational resources, cultural possessions
 - Is the sole individual-level measure we have on deprivation for Scottish students and performance in school assessments

PISA: social background comparisons

- Strength of relationship (13% - average)
- Gradient of relationship (37 points – average, equivalent to about 1 year's schooling)

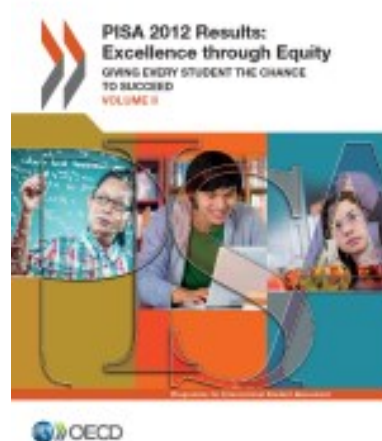
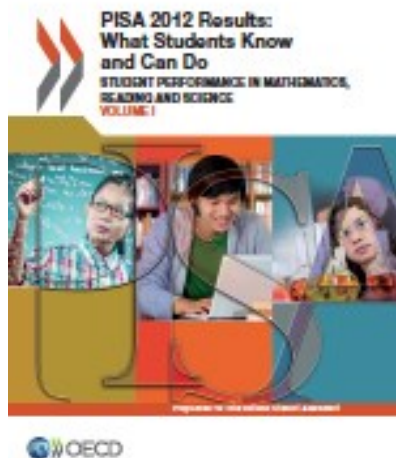


PISA Content #2

- Student motivations and attitudes to subject and school
- Student attendance patterns
- School leader (usually headteacher) views on:
 - Organisation of main subject teaching
 - Qualifications and training of their teachers
 - Factors affecting school and ability to teach

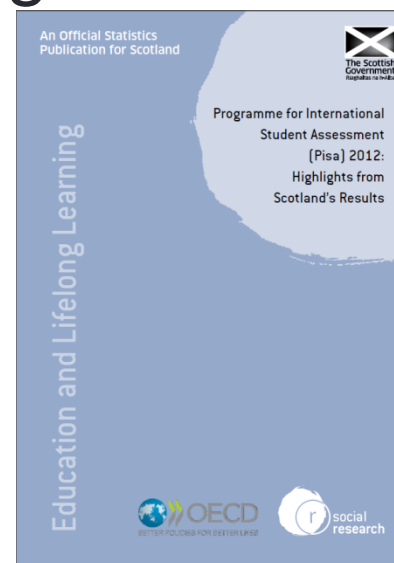
Publications

- OECD 2012: 6 volumes



- Regions (including Scotland) in annex

- Scotland – highlights
- Comparisons by average score, distribution, background



Analysis within SG

- National Indicator: improve relative to OECD average
- Supplementing OECD data
 - Trend analysis in average scores, attainment gap
 - Attainment gaps in minor domains
 - Comparisons with OECD countries and other UK administrations
 - Comparisons of share of low and high performers
 - Pupil and School leaders questionnaire data

Analysis outside SG

- OECD review: Improving Schools in Scotland: An OECD Perspective
 - Average performance
 - High/low level performers
 - Data on inclusivity of schools
 - Questionnaire data on motivation
- OECD reports on wider data
 - Low-performing students
 - Opportunity to Learn
 - Girls' performance



Potential analysis

- Scottish Candidate Number allows:
 - Analysis by area deprivation (via postcode)
 - Analysis by SQA data
- Further work on attainment and factors that support this
- 2012 (Maths) and 2015 (Science) allow investigation into STEM education and what is effective
- Further work on gender breakdowns

Data availability

- International dataset available from OECD website www.oecd.org/pisa
- Guidance on combining plausible values
- Software available from IEA
- SCN available from SG

Queries

Jonathan Wright, Learning Analysis

jonathan.wright@scotland.gsi.gov.uk

0131 244 5310