Ireland's use of PISA data to support equity in education

Lorraine Gilleece

Research Fellow

Educational Research Centre

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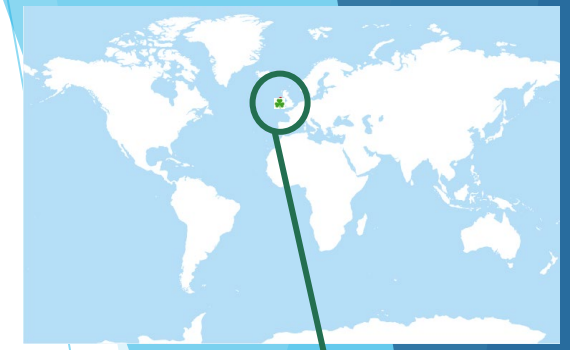
Lorraine.Gilleece@erc.ie

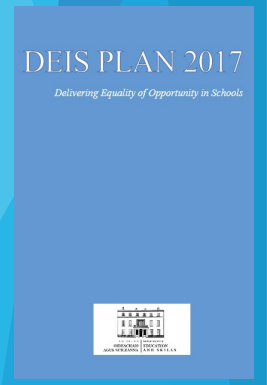
Rationale for using PISA data to inform policy for equity in education in Ireland

- A lack of administrative data to support policy monitoring and evaluation
  - A recognised issue for monitoring policy related to equity in education (Gilleece & Clerkin, 2024; OECD, 2024)
  - A lack of student background data at the individual level
  - Limited data on student achievement at the individual level (primary level)
- Provides an international perspective that would not be available with national data (Rowley et al., 2020)

Context: Ireland

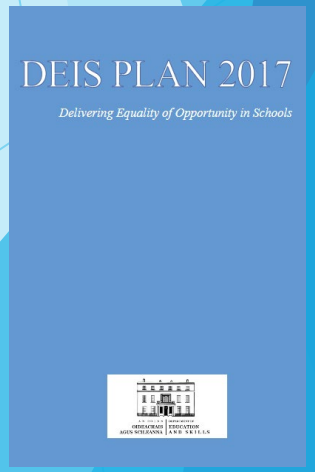
- Strong performance in reading, mathematics and science and equity outcomes at primary and post-primary levels (OECD, 2024)
- A narrower socio-economic gap in educational outcomes than on average across the OECD (OECD, 2024)
  - Nonetheless, differences in outcomes persist for students from disadvantaged backgrounds (Weir & Kavanagh, 2018; OECD, 2024)
- A strong history of pilot projects and initiatives to combat educational disadvantage at pre-school, primary and post-primary levels (Weir & Archer, 2004)
  - Since 2005, *Delivering Equality of Opportunity in Schools* (DEIS) programme is the main policy response (Dept of Education & Science, 2005; DES, 2017)
  - Significant expansion of DEIS in 2022 – now almost a third of schools and about a quarter of students in DEIS (OECD, 2024)
  - DEIS schools receive additional resources (with some variation between primary and post-primary and by DEIS 'band'), e.g., additional grant allocation and access to Home-School Community Liaison Co-ordinator





Context: Literacy and Numeracy

- A national strategy for literacy and numeracy was published in 2011 (DES, 2011)
- An interim review was published in 2017
  - Some targets met but…
  - Persistent achievement gaps between students in DEIS and non-DEIS schools (DES, 2017a)
- Specific targets based on PISA reading and mathematics were set for the percentages of students (overall nationally and in DEIS schools)
  - At or above Level 4
  - At or above Level 5 (high achievers)
  - At or below Level 1 (low achievers)
- PISA 2015 served as the baseline
- Targets were for 2020 (to coincide with the lifetime of the Strategy)
- The same targets were included in the 2017 revision of the DEIS plan (DES, 2017b)



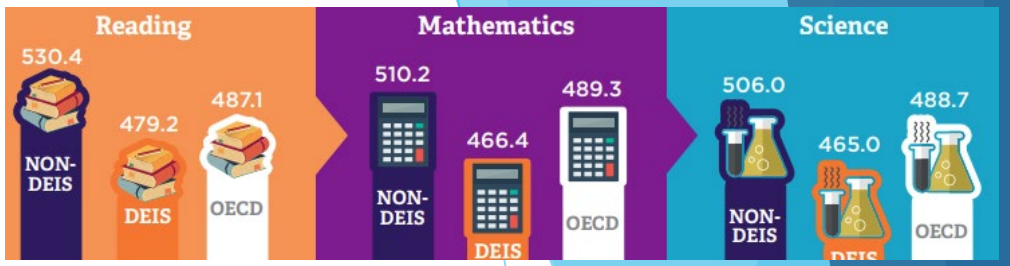
Context: DEIS plan 2017

- National targets set related to Literacy/Numeracy; Retention; Student wellbeing; Progression to Further and Higher Education; Teacher education; Parental engagement and Community links
- In order to achieve the targets in the plan (including those related to PISA achievement), five goals were set, including:
- Goal 1: To implement a more robust and responsive assessment framework for the identification of schools and effective resource allocation
  - HP Deprivation index: based on the Census of the Population, calculated at the Small Area Level (approx. 100 households), available for most students' home addresses, aggregated to the school-level to give an indicator of school-level disadvantage
  - Recognition in the plan that ongoing analysis and research required to support best practice in the application of the identification and resource allocation process
- Goal 2: To improve the learning experience and outcomes of students in DEIS schools
  - Includes supporting good practice and innovation; school planning; school climate

Approach: Data from PISA 2018

- Used to examine achievement in DEIS schools and progress towards literacy and numeracy targets (Gilleece et al., 2020)
- Used to provide rich description of home backgrounds and school experiences of students in DEIS schools (Nelis et al., 2021)
- Used to validate the deprivation index used to identify schools for DEIS (Gilleece & McHugh, 2022)
  - How is school-average ESCS associated with school-average HP (national deprivation index)?
  - How is school-average ESCS associated with percent fee waiver (national variable used in earlier DEIS identification approach)?
- PISA 2018 had 157 post-primary schools: 41 DEIS and 116 non-DEIS

Findings (Achievement)



- In PISA 2018, students in DEIS schools scored (Gilleece et al., 2018; McKeown et al, 2019):
  - At the level of the OECD average in Reading
  - Below the OECD average in Maths and Science
- A significant reduction from 2012 to 2018 in the percentages of students in DEIS schools classified as low achievers in Maths (from 37% to 28%)
- Some evidence of a narrowing of the reading achievement gap between students in DEIS and non-DEIS schools between 2009 and 2018
  - But Ireland's poorer reading performance in 2009 was atypical – possible under-estimation (Cosgrove & Cartwright, 2014)

PISA Reading achievement targets for 2020: Percentages of students in DEIS schools at specified levels

	Baseline (PISA 2015)	PISA 2018	Target 2020
Below Level 2	21.8%	21.8%	18%
At or above Level 4	21.4%	21.2%	26%
At or above Level 5	4.7%	5.5%	8%

Findings (Progress towards targets)

PISA Reading achievement targets for 2020: Percentages of students in DEIS schools at specified levels

	Baseline (PISA 2015)	PISA 2018	Target 2020
Below Level 2	21.8%	21.8% [17.8, 25.8]	18%
At or above Level 4	21.4%	21.2% [17.6, 24.9]	26%
At or above Level 5	4.7%	5.5% [3.9, 7.0]	8%

- Percentages generated by PISA are estimates – measurement and sampling error (Shiel et al., 2022)
- Low proportion of students in Ireland performing Below Level 2 – preferable to focus on lower-achieving boys? Or higher achievers, particularly in Mathematics or Science? (McKeown et al., 2019; Shiel et al., 2022)
- Individual schools cannot assess their progress towards PISA targets (Shiel et al., 2022)
- Specific PISA targets are not set in the most recent *Literacy, Numeracy and Digital Literacy Strategy*
  - Indicators include reference to improved reading and mathematics performance by learners in DEIS schools
  - Measuring success of the strategy will draw on data sources including national and international test results (Government of Ireland, 2024a, 2024b)

Findings (PISA Economic, Social and Cultural Status)

- Strong correlations between school-average ESCS and the national measures examined (school-average HP, r=.73; percent fee waiver, r=-.80) (Gilleece & McHugh, 2022)
- Looking at quintiles of school-average ESCS vs quintiles of school-average HP
  - Nearly half of schools received the same classification with both approaches
  - About one-third of schools move one position
  - For almost one-fifth of schools, a difference of two or more quintiles
    - 6 schools where average ESCS suggested a higher socio-economic intake
    - 14 schools where average ESCS suggested a lower socio-economic intake than HP
- Strong correlations likely reassuring for policymakers
  - But need for further analysis of schools with mismatch between HP quintile and ESCS quintile
  - *Note our analysis pre-dated refinements to the DEIS identification system introduced in 2022 (DoE, 2022): adjustments at the student level for students who are from Traveller or Roma backgrounds, living in homeless accommodation or living in International Protection Accommodation Services*

Lessons for PISA countries (1)

- Use of PISA data allows for consideration of both educational inequality (SES-related achievement gap) and educational disadvantage (achievement of low-SES students relative to their international counterparts) (Rowley et al., 2020)
  - Typical national comparison is with non-DEIS schools only
  - PISA provides an alternative benchmark when considering achievement in DEIS schools
- Sampling: impact of decisions (e.g., stratification variables, oversampling)
  - Some variation in the percentages of students in DEIS schools across PISA cycles
- Response rates: variation across cycles (Donohoe et al., 2023a, 2023b).
  - In PISA 2022, some evidence of an upwards bias within the respondent sample (larger among male students and students in DEIS schools)
  - "…the difference observed between students in DEIS and non-DEIS schools in 2022 is likely to be an underestimate"
  - Subgroup analysis requires a further level of caution in interpretation

Lessons for PISA countries (2)

- Trend analysis for subgroups
  - Changes to the identification approach underpinning DEIS may limit comparisons over time
  - Difficult to examine trends over time if criteria for inclusion in the group change
- Using PISA for national targets
  - Target setting: Consider scope for improvement (IRL has low percentage of low reading achievers)
  - Monitoring progress towards targets: Schools cannot assess their own progress
  - Achievement of targets
    - Consideration of the (unavoidable) error associated with PISA scores
    - Alignment of national targets with PISA cycles

Questions or comments?

- Email: Lorraine.Gilleece@erc.ie
- @ERC_irl / https://www.erc.ie