

Australia's Education Challenge

Analysis of Programme for International Student Assessment

12 December 2013

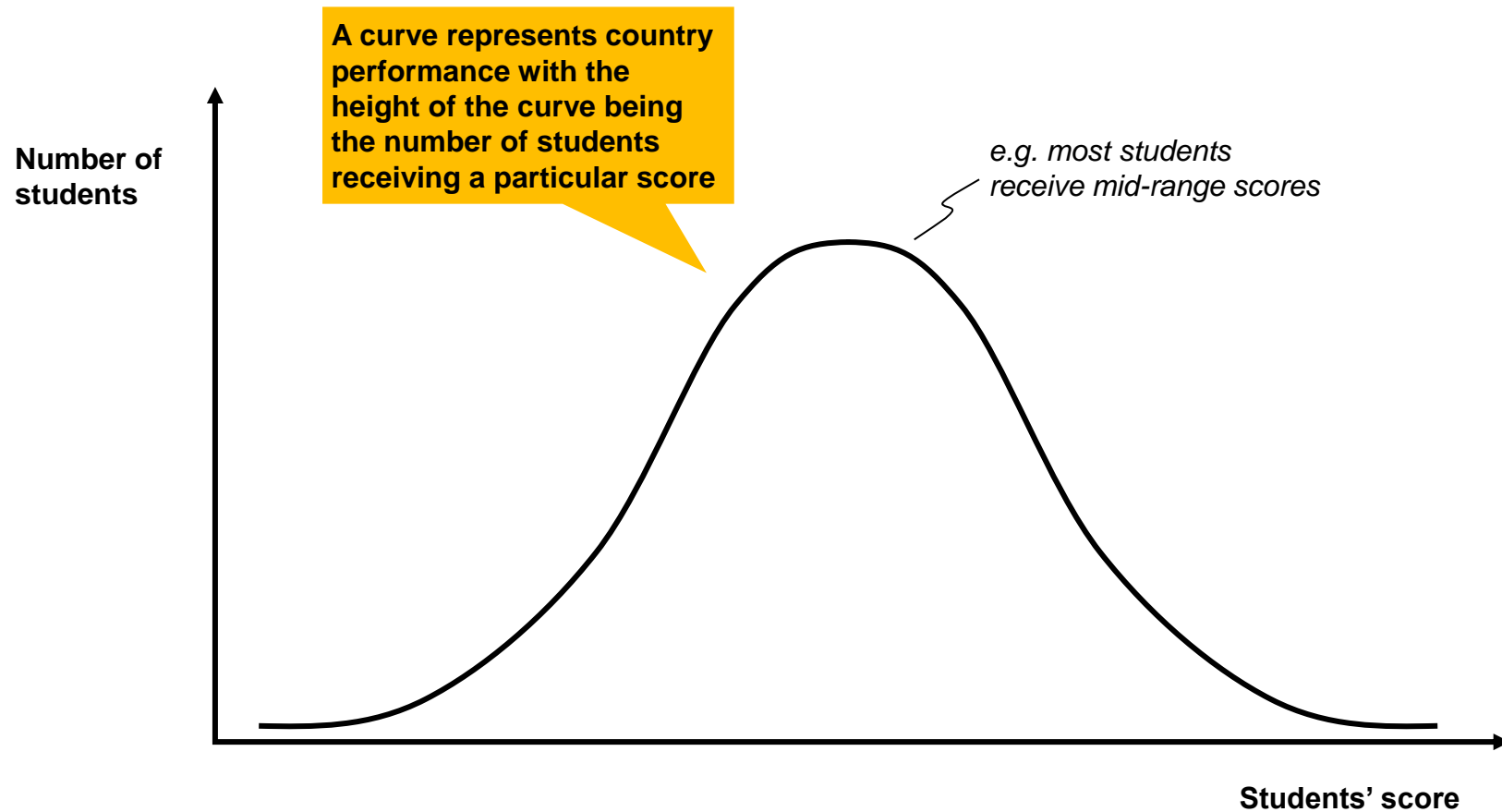
IMPLICATIONS OF PISA DATA FOR AUSTRALIA'S EDUCATION CHALLENGE

- Comparing the Programme for International Student Assessment (PISA) results over the years from 2000 to 2012 highlights problems with the Australian school system:
 - **The equity problem, where one in seven children are in the bottom tail for reading literacy and one in five for maths**, and do not reach the “proficiency to participate in society”
 - **The slippage issue, where the entire distribution is deteriorating** across all performance levels ...
 - ... visible as a **competitiveness problem, where Australia is falling behind** its Asian regional competitors in education performance

Performance can be visualised as a curve representing the number of students achieving each score

INTRODUCTION TO INTERPRETING PISA RESULTS – THE DISTRIBUTION CURVE

ILLUSTRATIVE

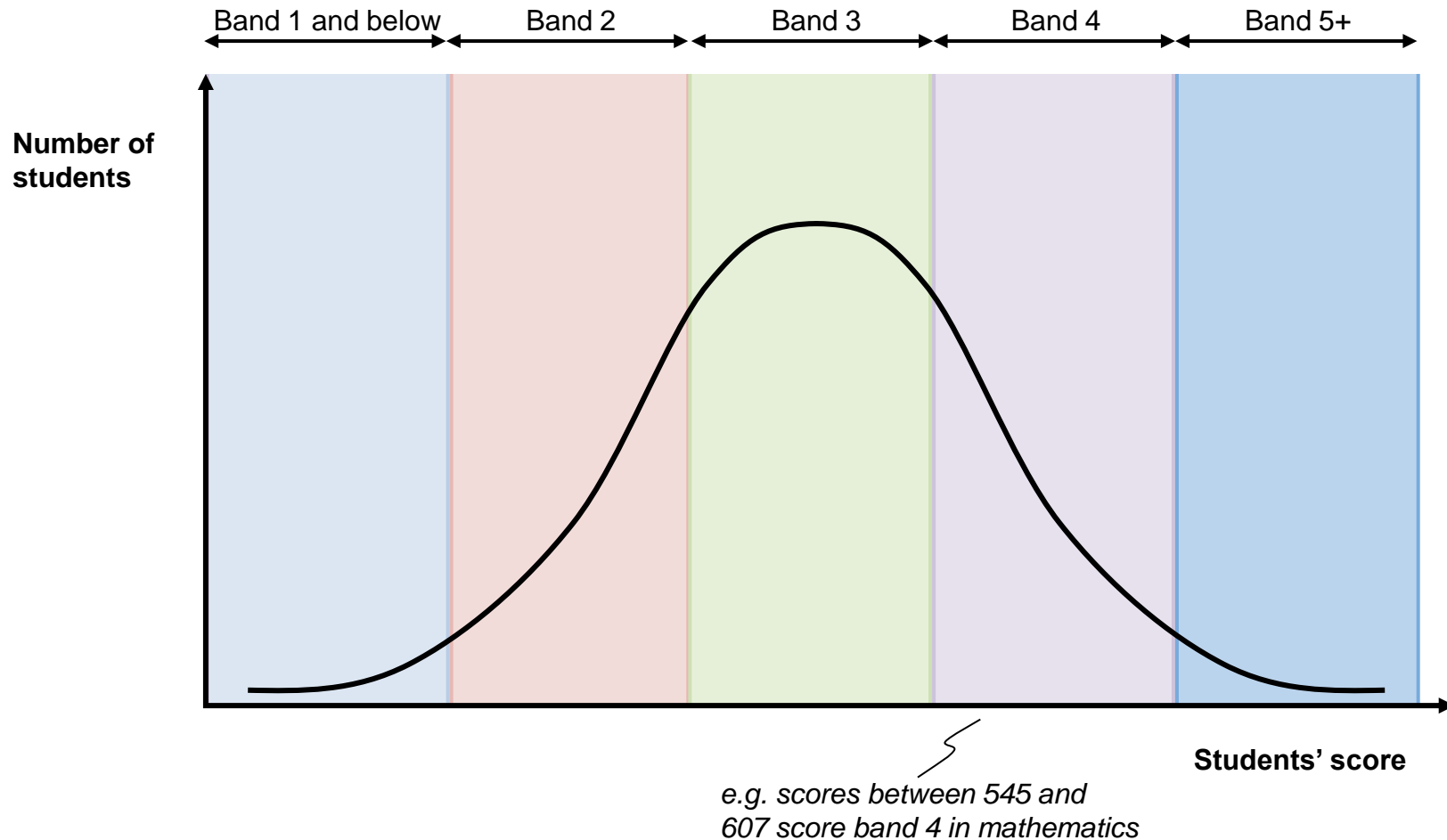


Scores are grouped into bands, which are used to summarise the levels of achievement

INTRODUCTION TO INTERPRETING PISA RESULTS – THE PERFORMANCE BANDS

Scores are grouped into bands

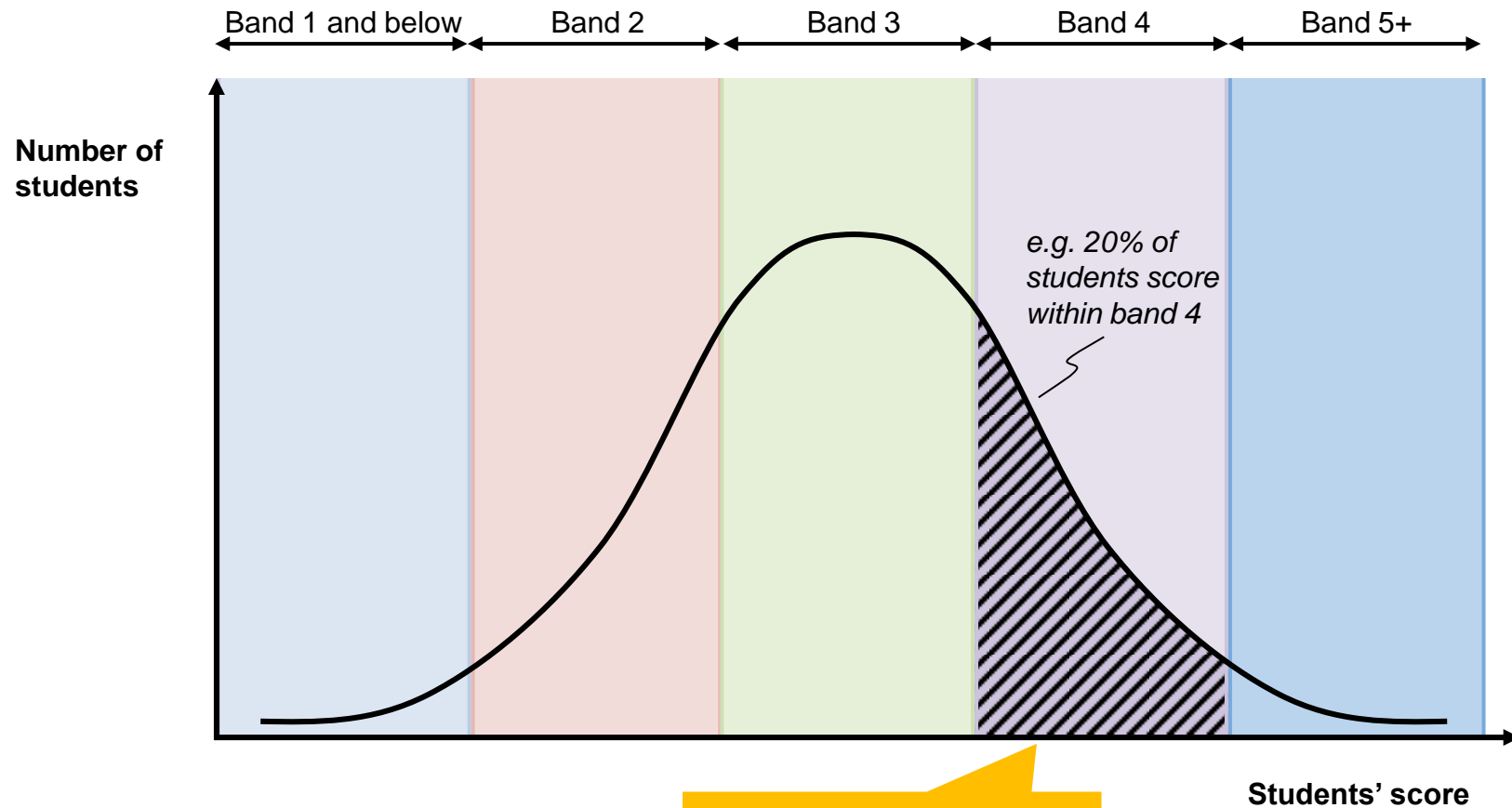
ILLUSTRATIVE



Performance can be summarised as the percentage of students falling within a band

INTRODUCTION TO INTERPRETING PISA RESULTS – THE STUDENTS WITHIN A BAND

ILLUSTRATIVE

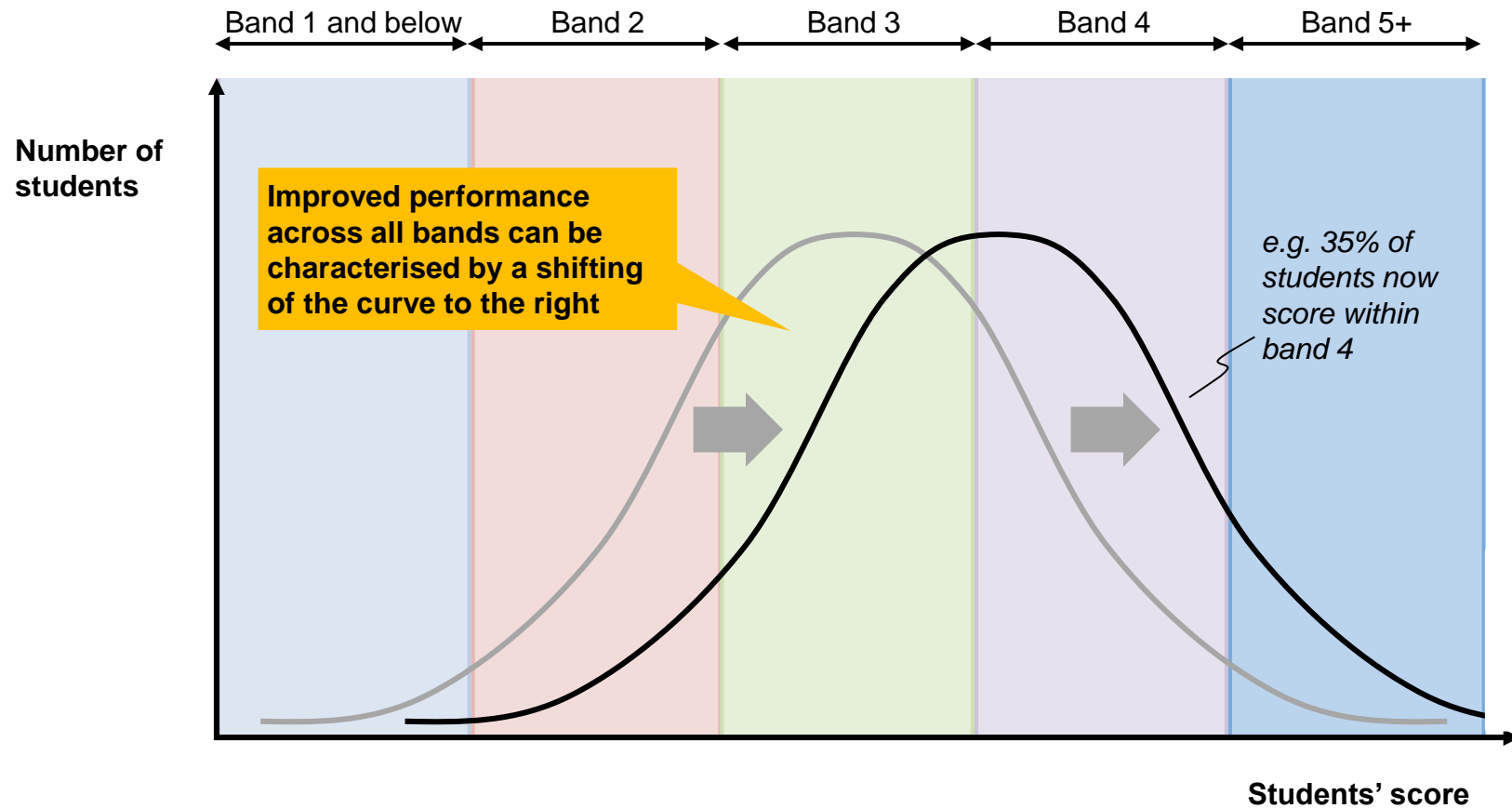


The area under the curve is proportional to the number of students in that band

Improved performance can be visualised as a shift in the curve to the right, where more students fall within higher bands and fewer fall within lower bands

INTRODUCTION TO INTERPRETING PISA RESULTS – THE PERFORMANCE IMPROVEMENT

ILLUSTRATIVE



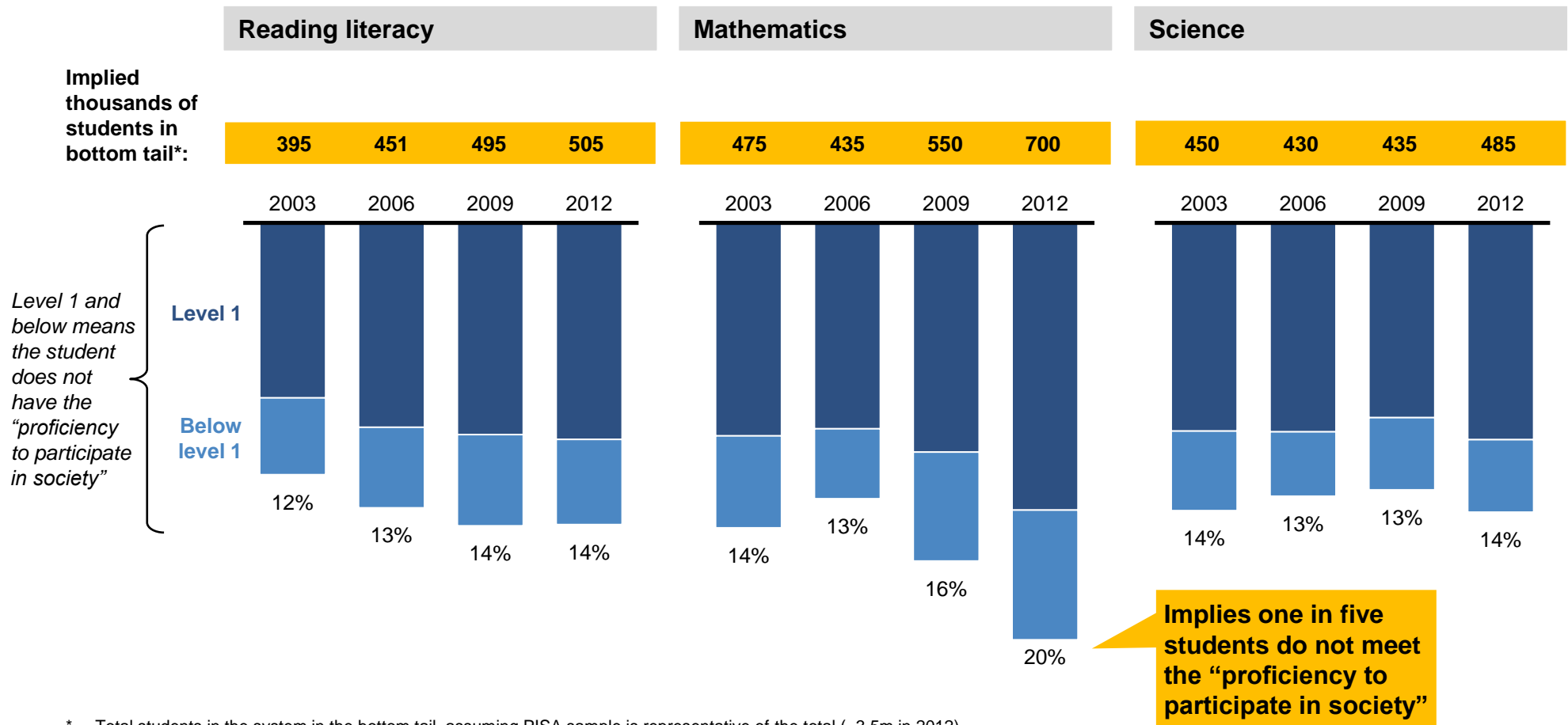
IMPLICATIONS OF PISA DATA FOR AUSTRALIA'S EDUCATION CHALLENGE

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One in seven children (14%) do not reach the “proficiency to participate in society” for reading literacy and science, rising to one in five children (20%) for mathematics

AUSTRALIAN CHILDRENS’ PROFICIENCY DISTRIBUTION BY SUBJECT, 2003-2012

Percent of 15 year olds in each proficiency level



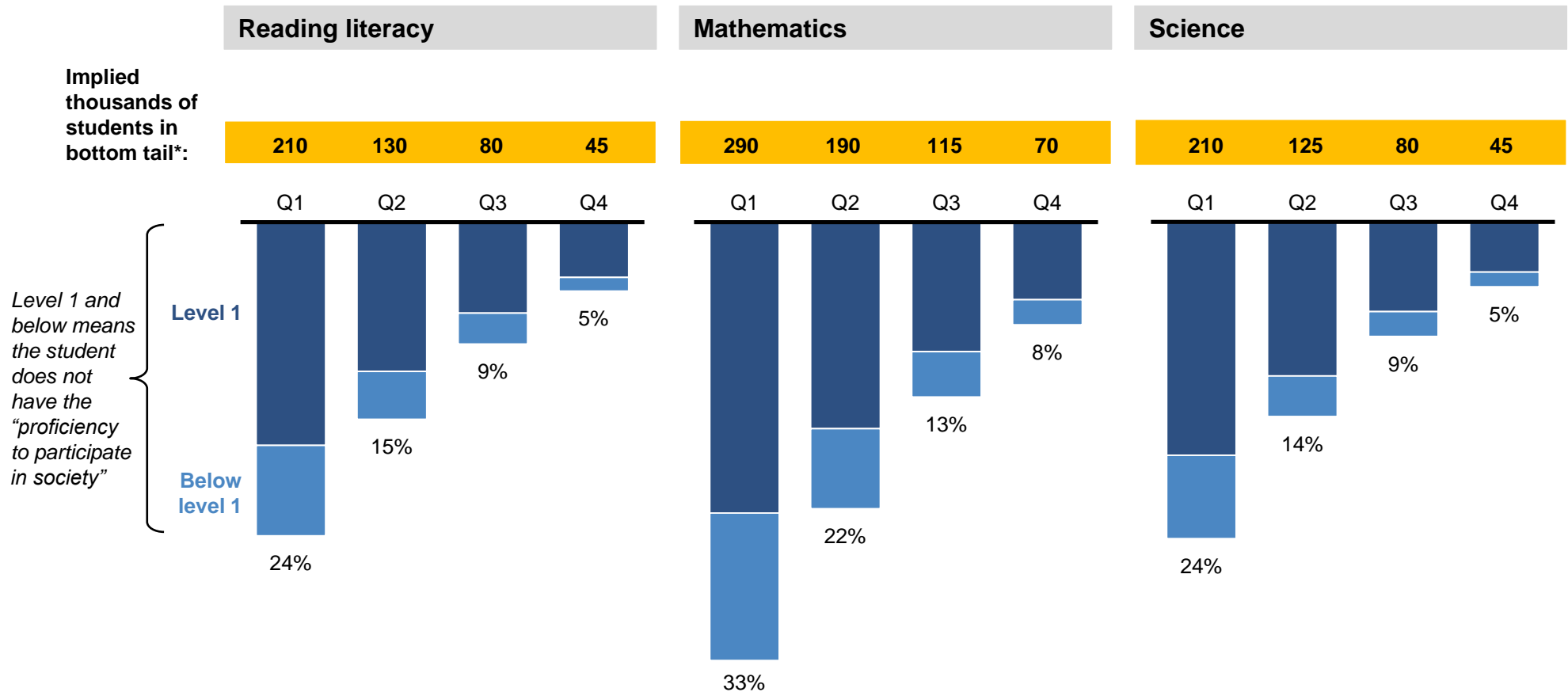
* Total students in the system in the bottom tail, assuming PISA sample is representative of the total (~3.5m in 2012)

Source: OECD Programme for International Student Assessment 2000-2012 ; ABS 4221.0 Schools Australia data

The issue is clearly worse for the lowest quartile classified by socio-economic background, however there are equally as many bottom tail students in the middle quartiles of socio-economic background

AUSTRALIAN CHILDRENS' PROFICIENCY DISTRIBUTION IN 2012 – BY QUARTILES OF ECONOMIC, SOCIAL AND CULTURAL STATUS

Percent of 15 year olds that participated in PISA testing



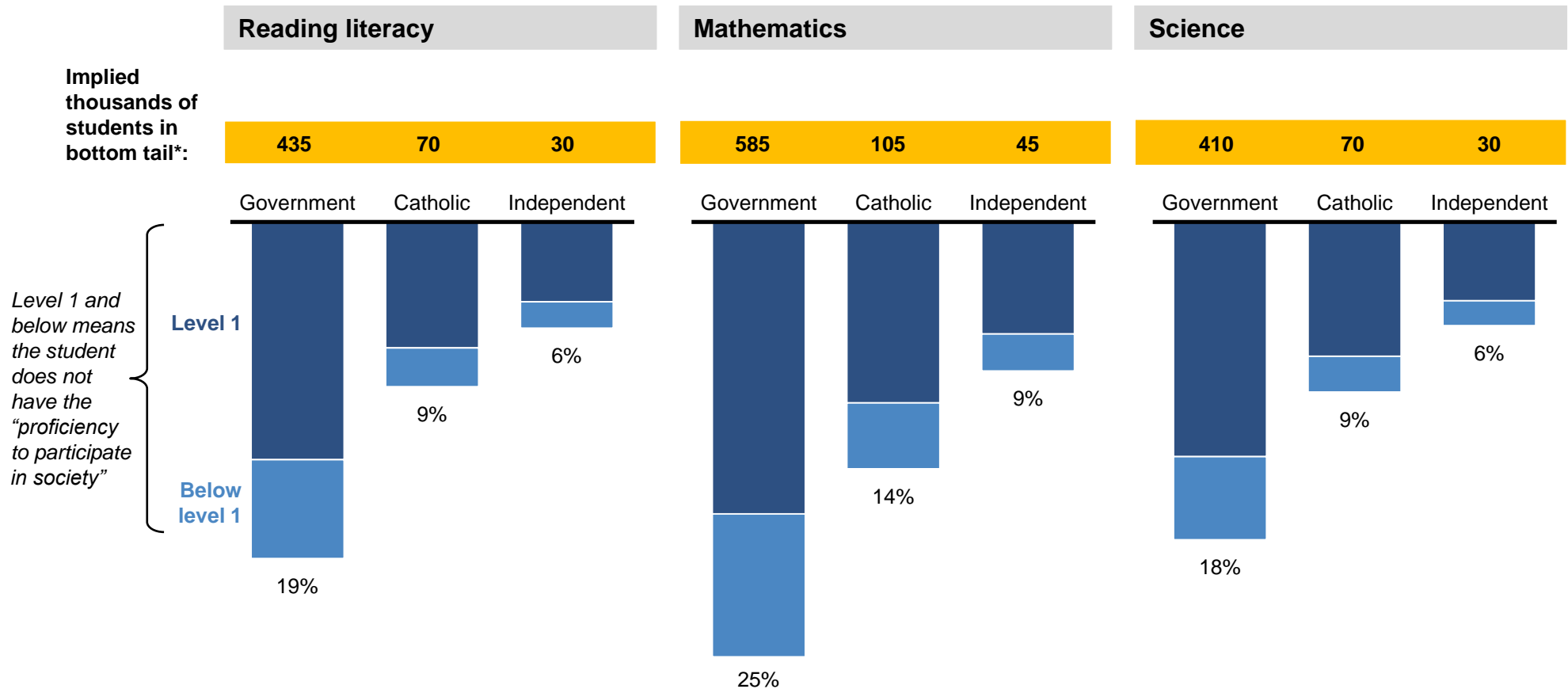
* Total students in the system in the bottom tail, assuming PISA sample is representative of the total (~3.5m in 2012)

Source: OECD Programme for International Student Assessment 2000-2012; ABS 4221.0 Schools Australia 2012 data

The poor performance is substantially worse in Government schools than in Catholic or Independent schools

AUSTRALIAN CHILDRENS' PROFICIENCY DISTRIBUTION IN 2012 – BY SCHOOL SYSTEM

Percent of 15 year olds that participated in PISA testing



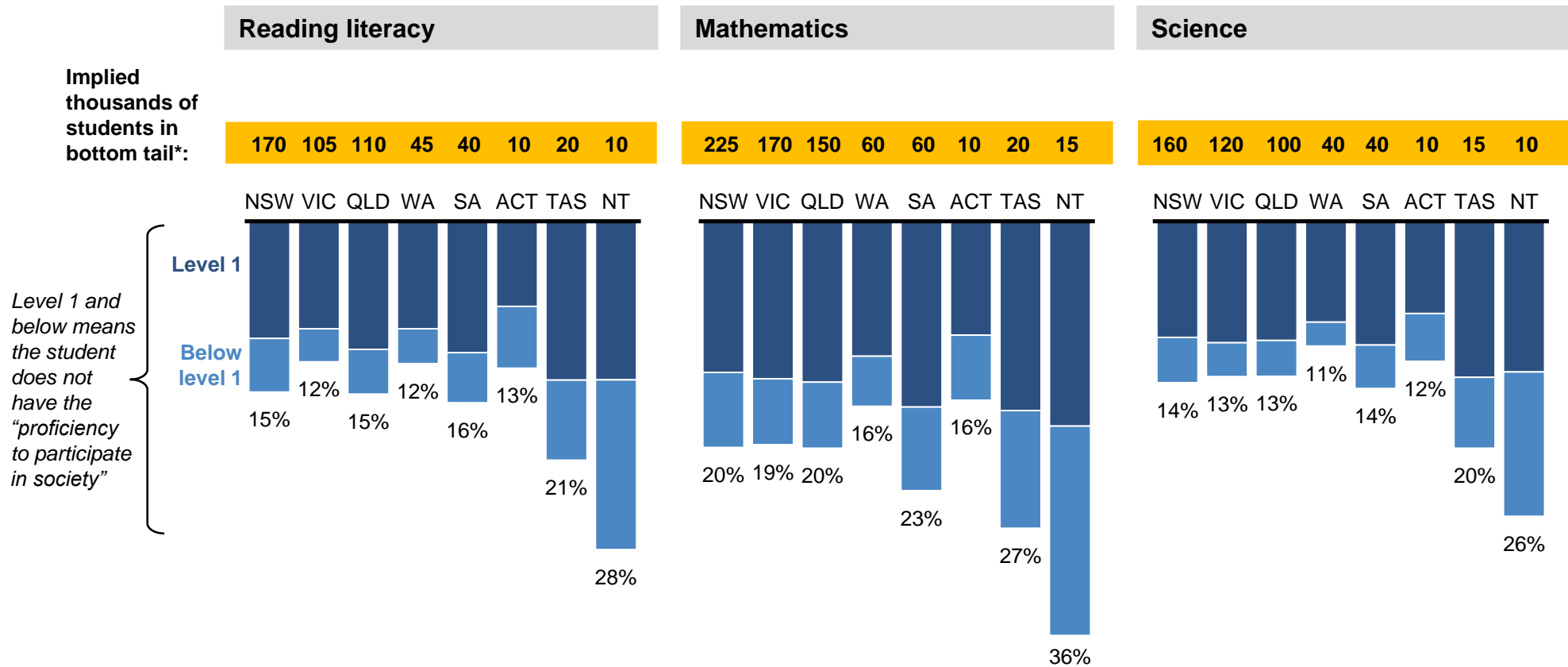
* Total students in the system in the bottom tail, assuming PISA sample is representative of the total (~3.5m in 2012)

Source: OECD Programme for International Student Assessment 2000-2012; ABS 4221.0 Schools Australia 2012 data

The equity problem is an issue evident in all states, but is particularly serious in Tasmania and the Northern Territory

AUSTRALIAN CHILDREN BELOW 'BASE-LINE' PROFICIENCY IN 2012 – BY STATE

Percent of 15 year olds that participated in PISA testing



* Total students in the system in the bottom tail, assuming PISA sample is representative of the total (~3.5m in 2012)

Source: OECD Programme for International Student Assessment 2000-2012; ABS 4221.0 Schools Australia 2012 data

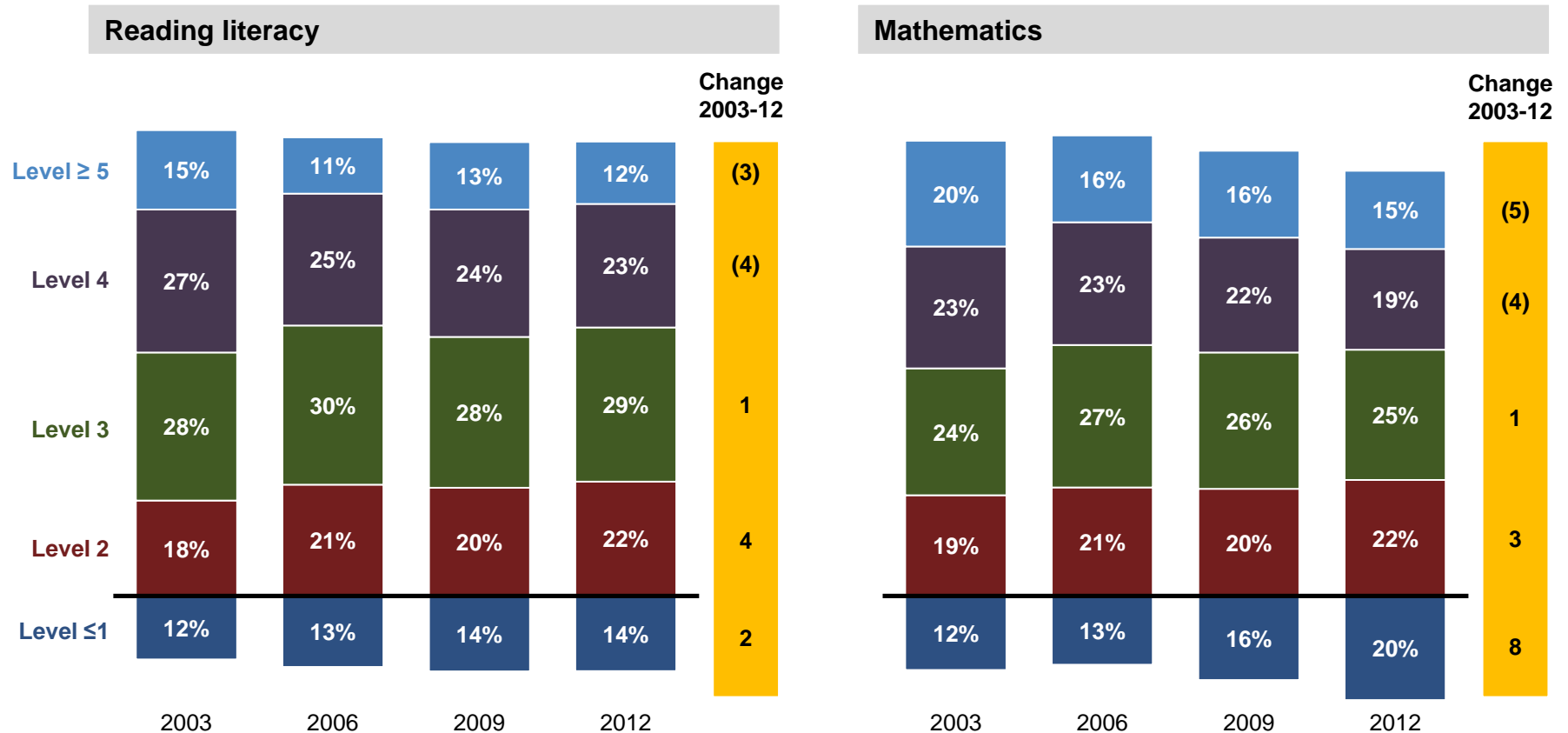
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Over the decade from 2003 to 2012, the proportion performing at the top levels (bands 4, 5 and above) have dropped from 42% to 35% in reading literacy and 43% to 34% in mathematics

AUSTRALIAN CHILDRENS' PROFICIENCY DISTRIBUTION

Percent of 15 year olds in each proficiency level

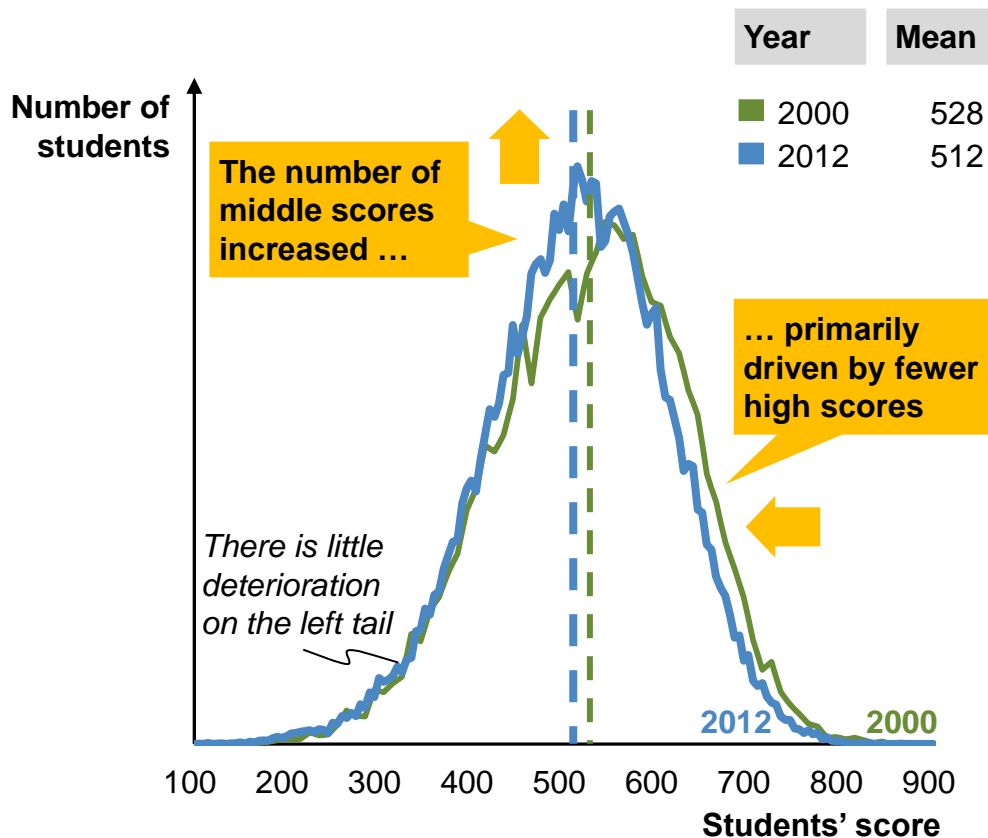


From the first PISA study in 2000 to the latest in 2012, the deterioration across the full distribution can be clearly seen for reading literacy and maths

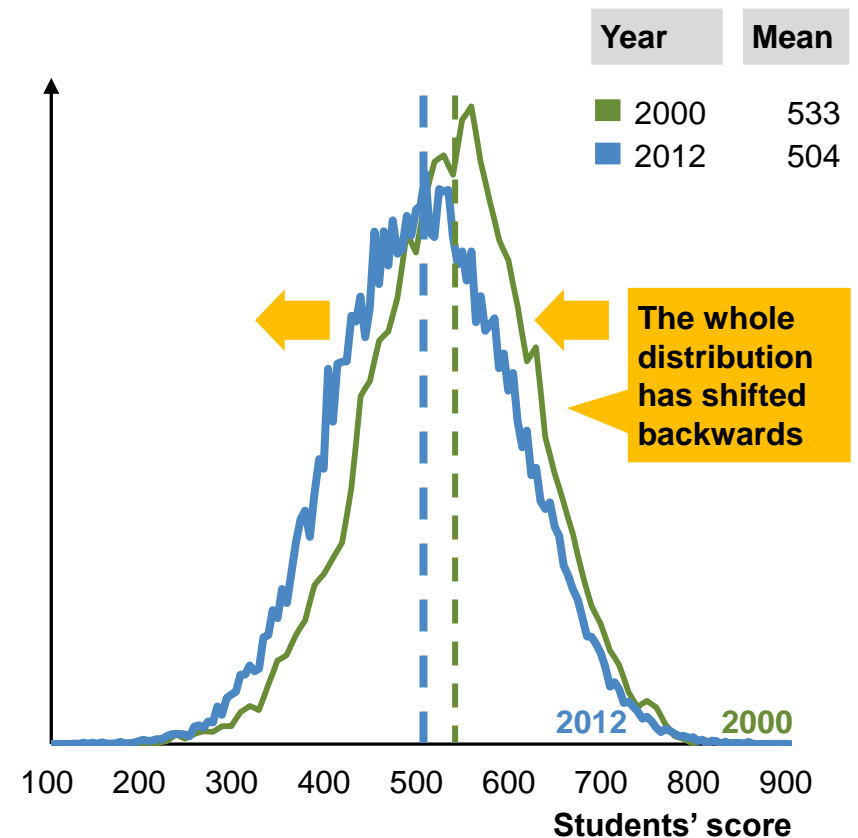
AUSTRALIA'S PERFORMANCE FROM 2000-2012

Frequency of student score

Reading literacy



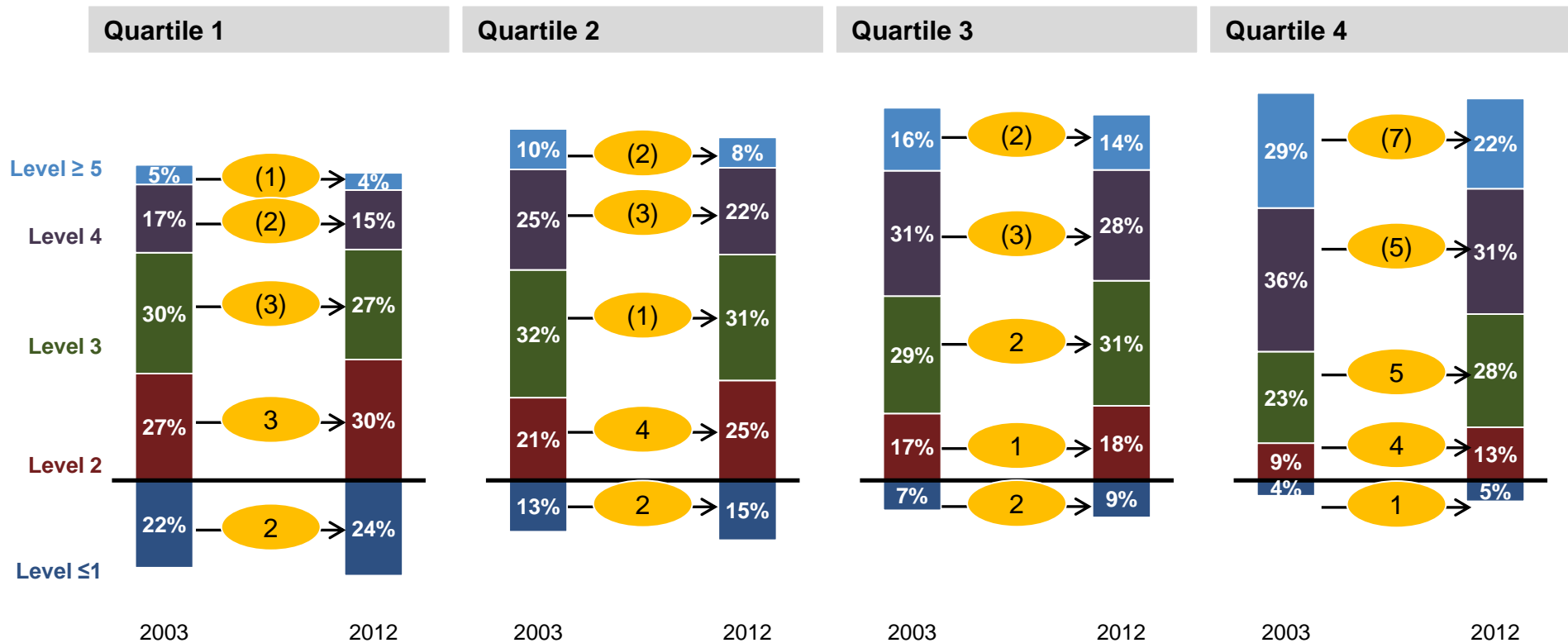
Mathematics



Performance is slipping across all socio-economic quartiles in reading literacy ...

CHANGE IN AUSTRALIAN CHILDRENS' PROFICIENCY DISTRIBUTION – READING LITERACY, BETWEEN 2012 AND 2003, BY SOCIO-ECONOMIC QUARTILE

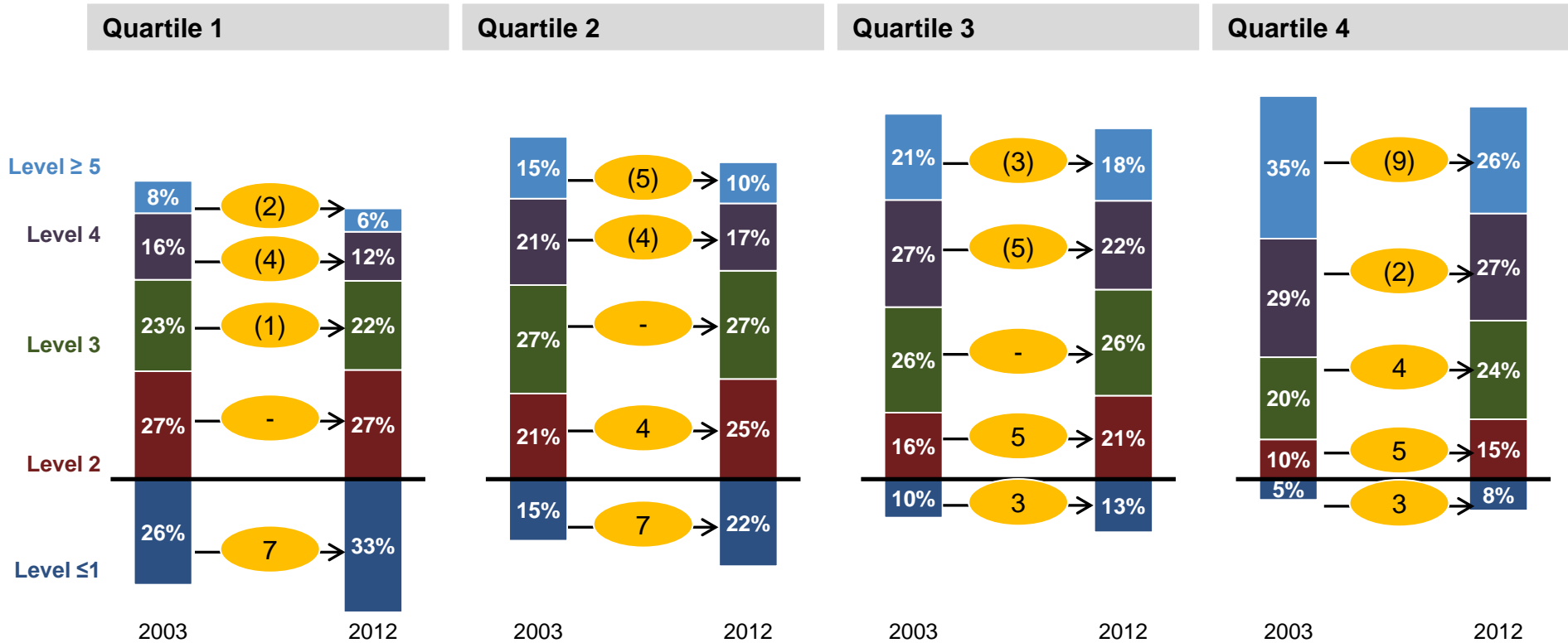
Percent of 15 year olds that participated in PISA testing



... with the even greater deterioration visible in mathematics

CHANGE IN AUSTRALIAN CHILDRENS' PROFICIENCY DISTRIBUTION – MATHEMATICS, BETWEEN 2012 AND 2003, BY SOCIO-ECONOMIC QUARTILE

Percent of 15 year olds that participated in PISA testing

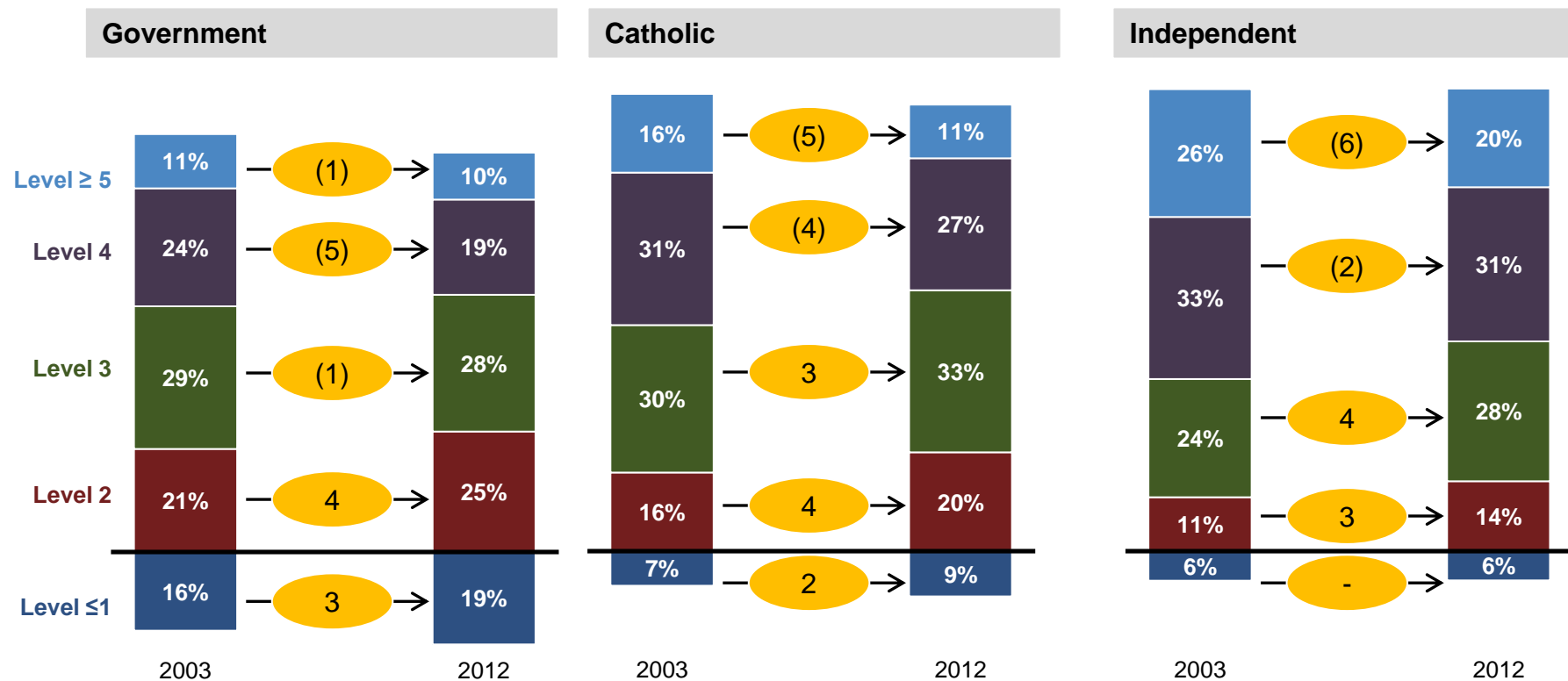


Source: OECD Programme for International Student Assessment 2000-2012

The slippage in reading literacy performance is across the entire distribution for all school systems ...

CHANGE IN AUSTRALIAN CHILDRENS' PROFICIENCY DISTRIBUTION – READING, BETWEEN 2012 AND 2000, BY SCHOOL SYSTEM

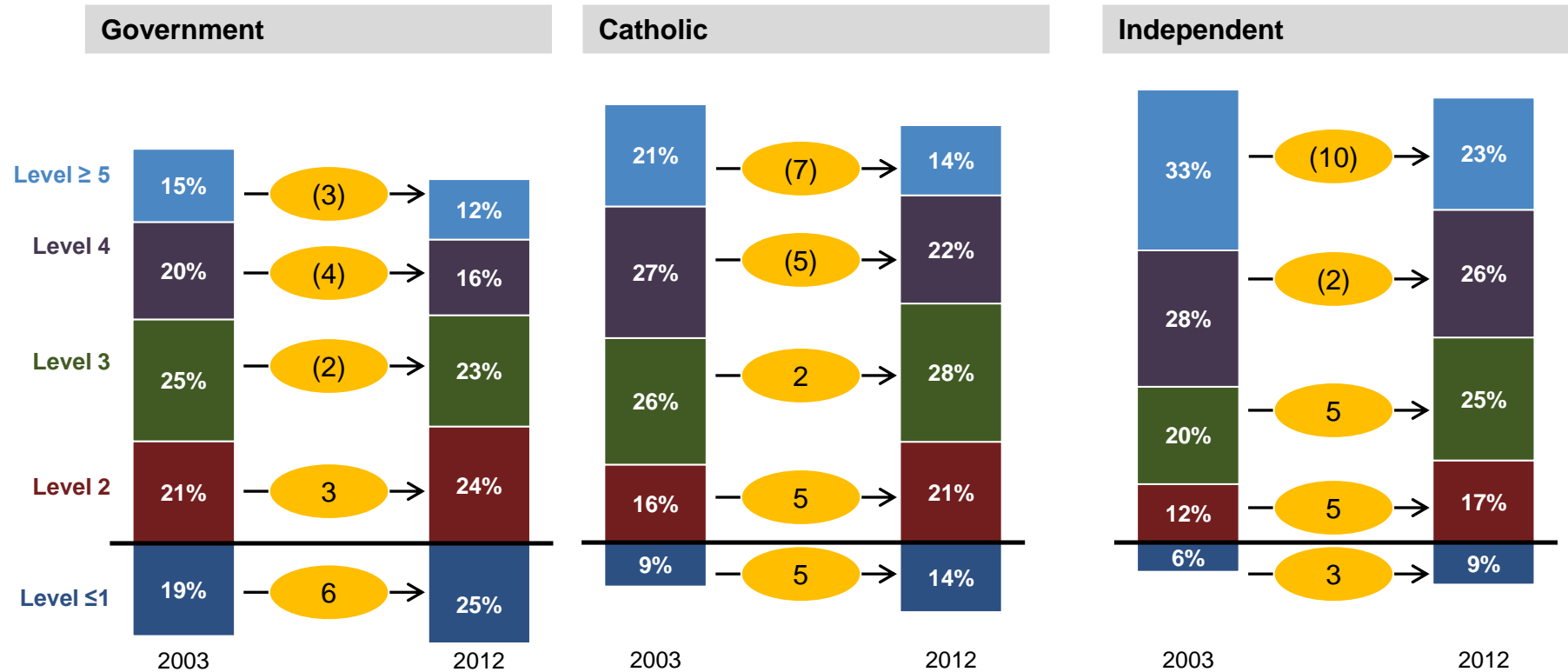
Percent of 15 year olds that participated in PISA testing



... with even greater deterioration visible in mathematics across all schools

CHANGE IN AUSTRALIAN CHILDRENS' PROFICIENCY DISTRIBUTION – MATHEMATICS, BETWEEN 2012 AND 2000, BY SCHOOL SYSTEM

Percent of 15 year olds that participated in PISA testing

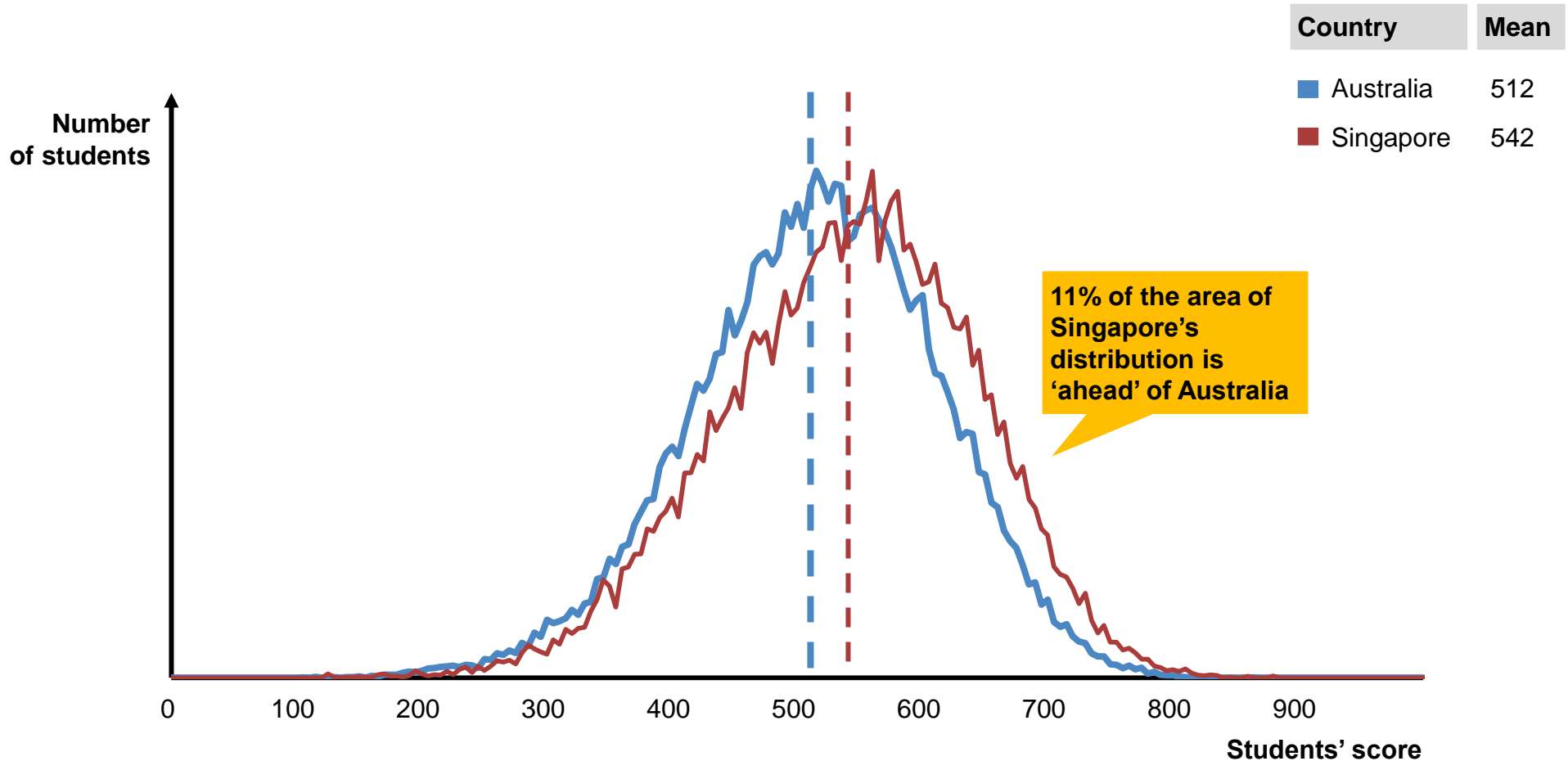


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Singapore outperforms Australia across all levels in reading literacy, with 11% of their distribution of educational output ahead of Australia

INTERNATIONAL HISTOGRAM COMPARISON – READING LITERACY, 2012



Singapore's outperformance is even greater in mathematics, where 27% of their distribution is ahead of Australia

INTERNATIONAL HISTOGRAM COMPARISON – MATHEMATICS, 2012

