RISE PROGRAMME IN INDONESIA

# Indonesian Children: In School but Not Learning

Amanda Beatty, Emilie Berkhout, Luhur Bima,
Thomas Coen, Menno Pradhan, Daniel Suryadarma

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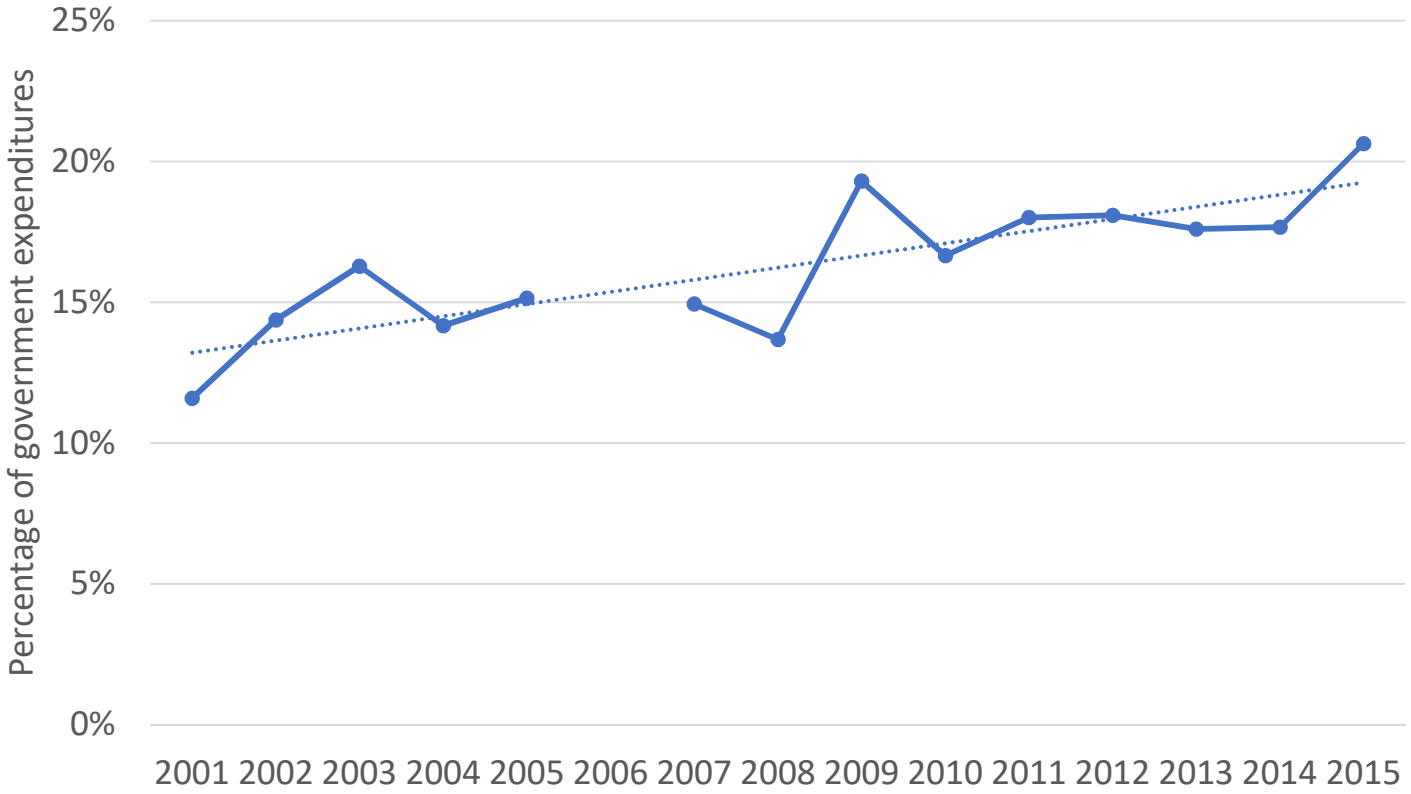
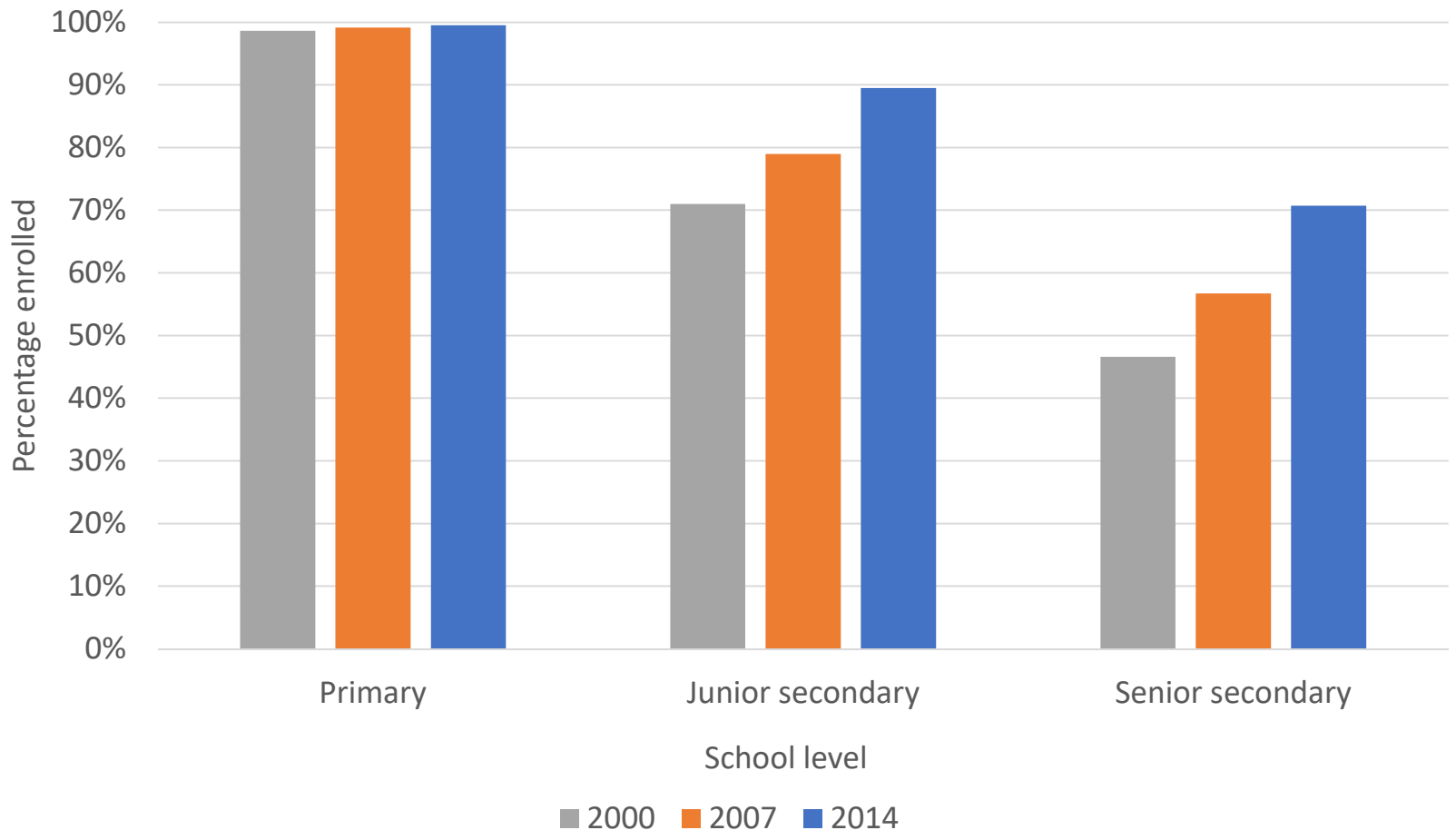
# Education expenditures as a percentage of total government expenditures have almost doubled




Equivalent to a threefold increase in total education expenditures in real terms

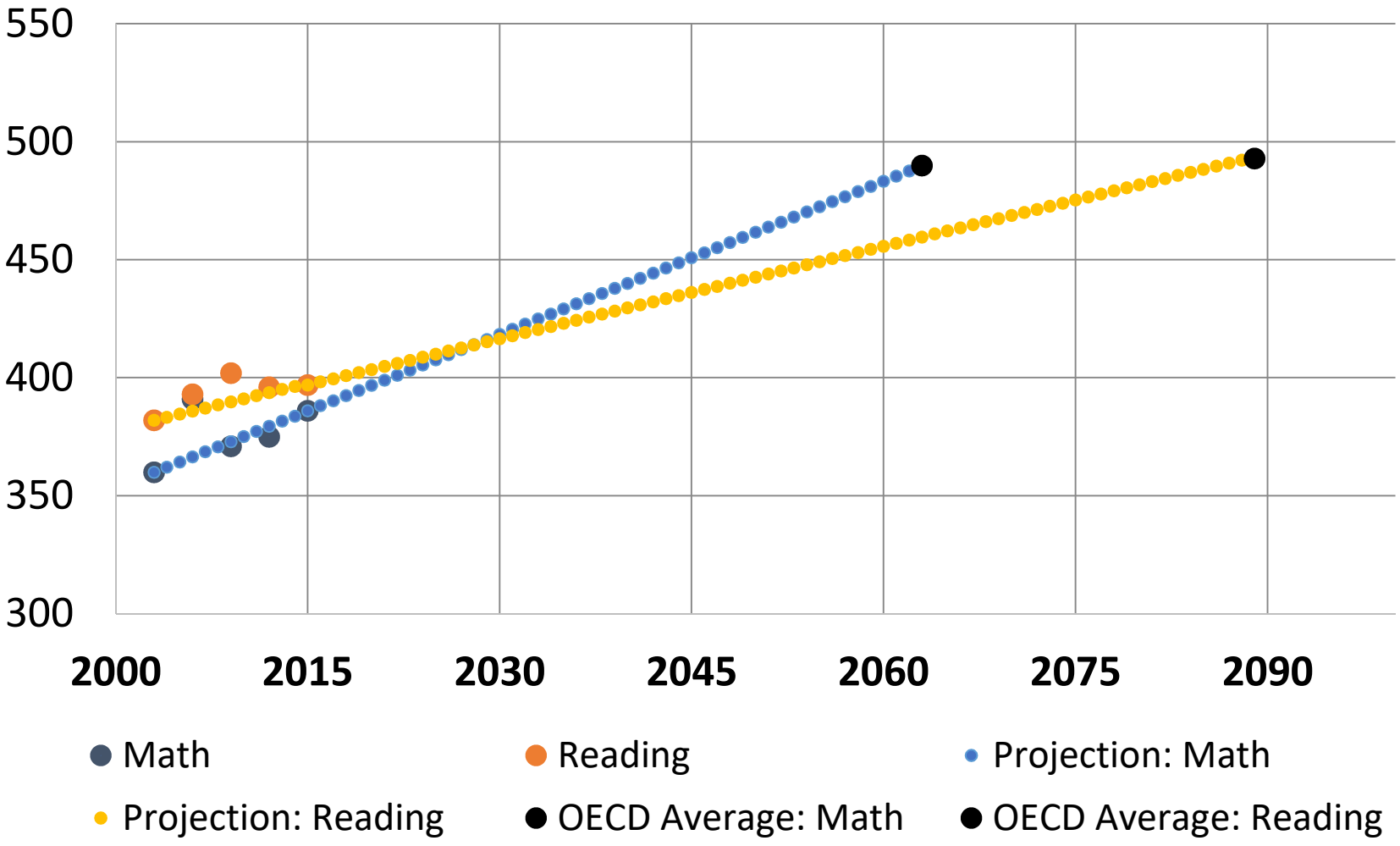
NOTE: Data not available for 2006.
Source: World Bank DataBank
Diop, Ndiame; Gil Sander, Frederico. 2018. *Indonesia Economic Quarterly: Learning more, growing faster (English)*. Washington, D.C. : World Bank Group.

# Primary school enrolment has been universal, while secondary school enrolment has been rising



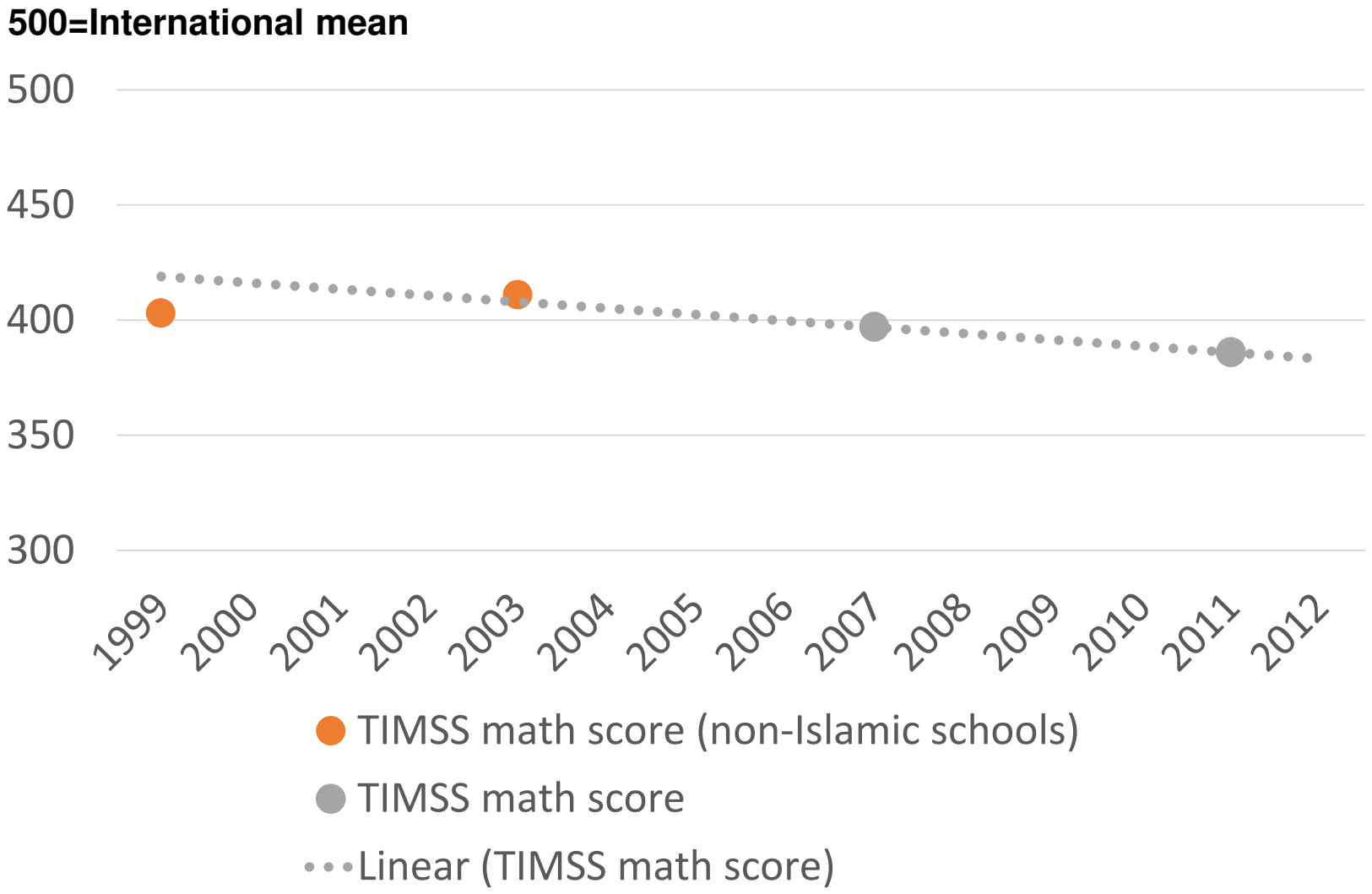

Source: IFLS 3, 4 and 5

# Getting to OECD levels in PISA will take generations




Source: World Bank, *World Development Report 2018: LEARNING to Realize Education's Promise*

# TIMSS results even show a negative trend



# We present Indonesian learning profiles

- We seek to better understand the Indonesian learning crisis by assessing learning by grade
  - This study and Afkar et al. (forthcoming) are first to show learning profiles for Indonesia
  - Afkar et al. (forthcoming) use school-based test in 2011 and 2012
- We use an almost nationally representative dataset covering 2000 to 2014
- Findings:
  1. Learning starts at a relatively low level
  2. Very little improvement as children attains more schooling
  3. By cohort, there is no improvement. Learning profile in 2014 is lower than in 2000.

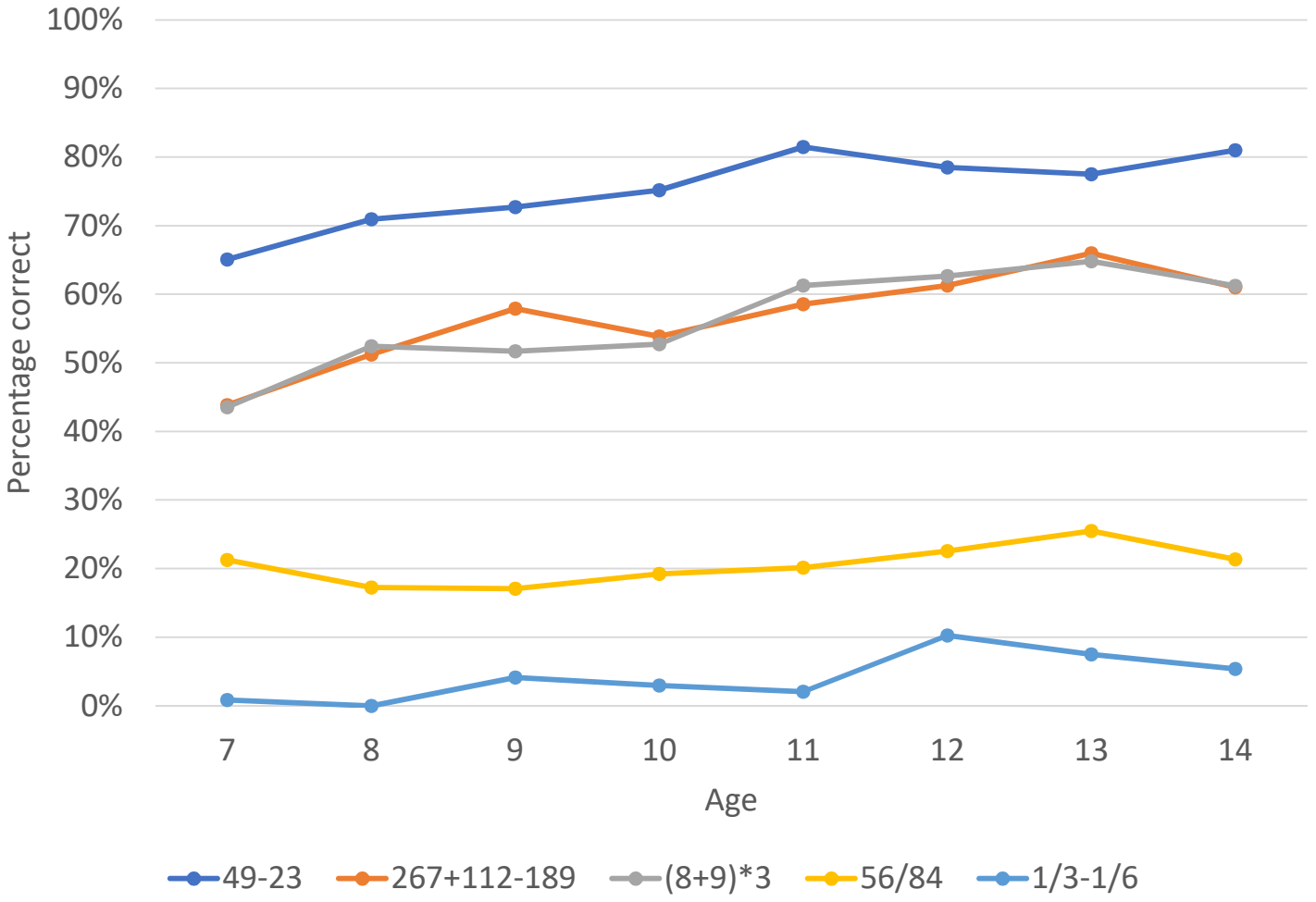
# The Indonesia Family Life Survey allows us to generate learning profiles for numeracy skills

- Indonesia Family Life Survey (IFLS): 2000, 2007, 2014
- Representative of 83% of Indonesian population
- Two sets of multiple choice numeracy tests, covering Grades 1 – 5 curriculum
- Correct for guessing: $y = (1 - \alpha) \times \frac{1}{K} + \alpha \times 1$
- Substantial group answered both versions of the test
  - Those above 14 years old who answered the easy version in the previous survey round
  - About 60 percent of 15 year olds+ respondents

| Test items for 7-14 y.o. | Grade level |
|---|---|
| 49-23 | 1 |
| 267+112-189 | 2 |
| (8+9)*3 | 3 |
| 56/84 | 4 |
| 1/3-1/6 | 4 |

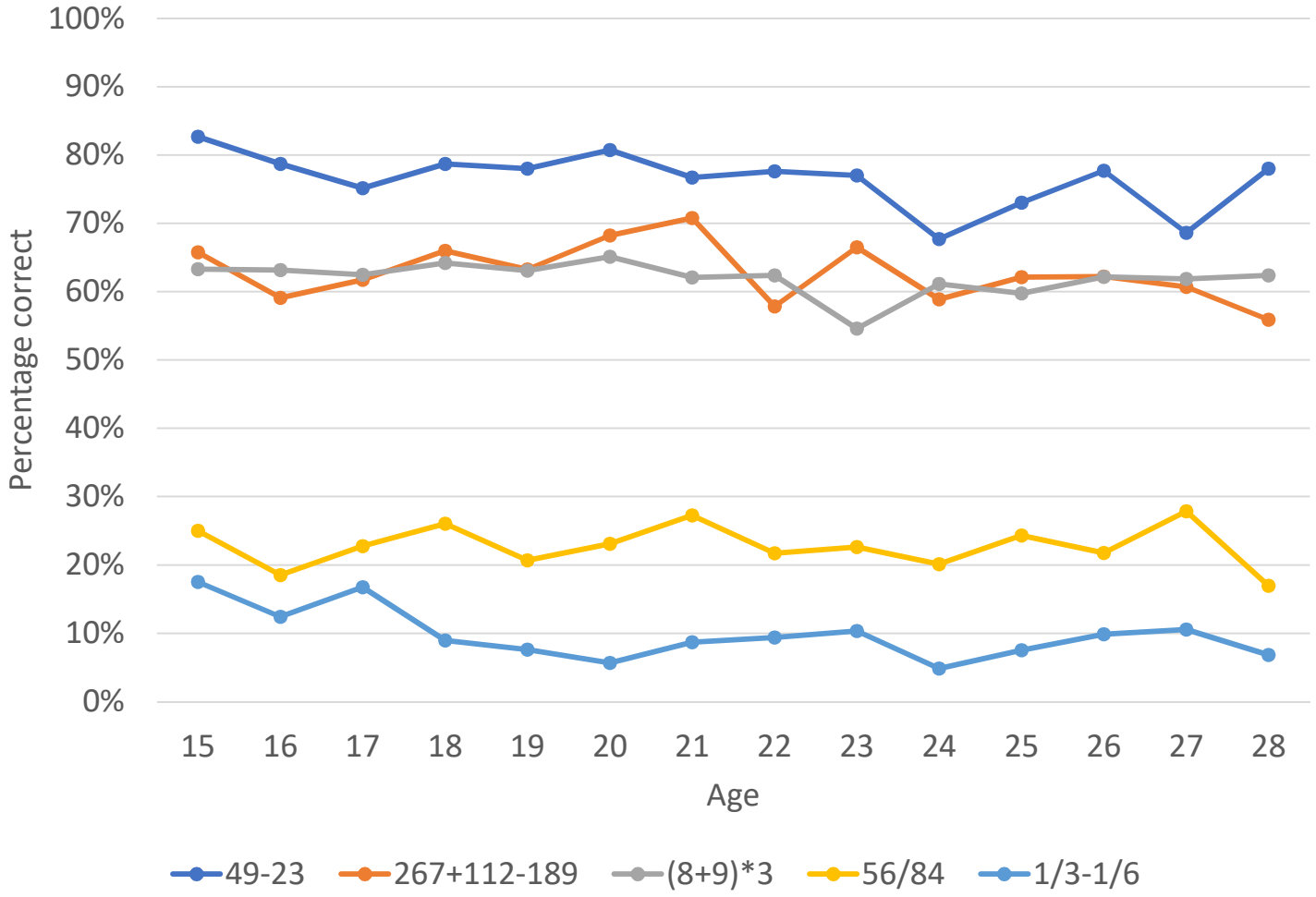
| Test items for >=15 y.o. | Grade level |
|---|---|
| $\frac{56}{84}$ | 4 |
| (412+213):(243-118) | 3 |
| 0.76-0.4-0.23 | 4 |
| (100-65)% of 160 million (in text) | 5 |
| 5% interest on Rp. 75,000 (in text) | 5 |

# Little learning between the age of 7 and 14



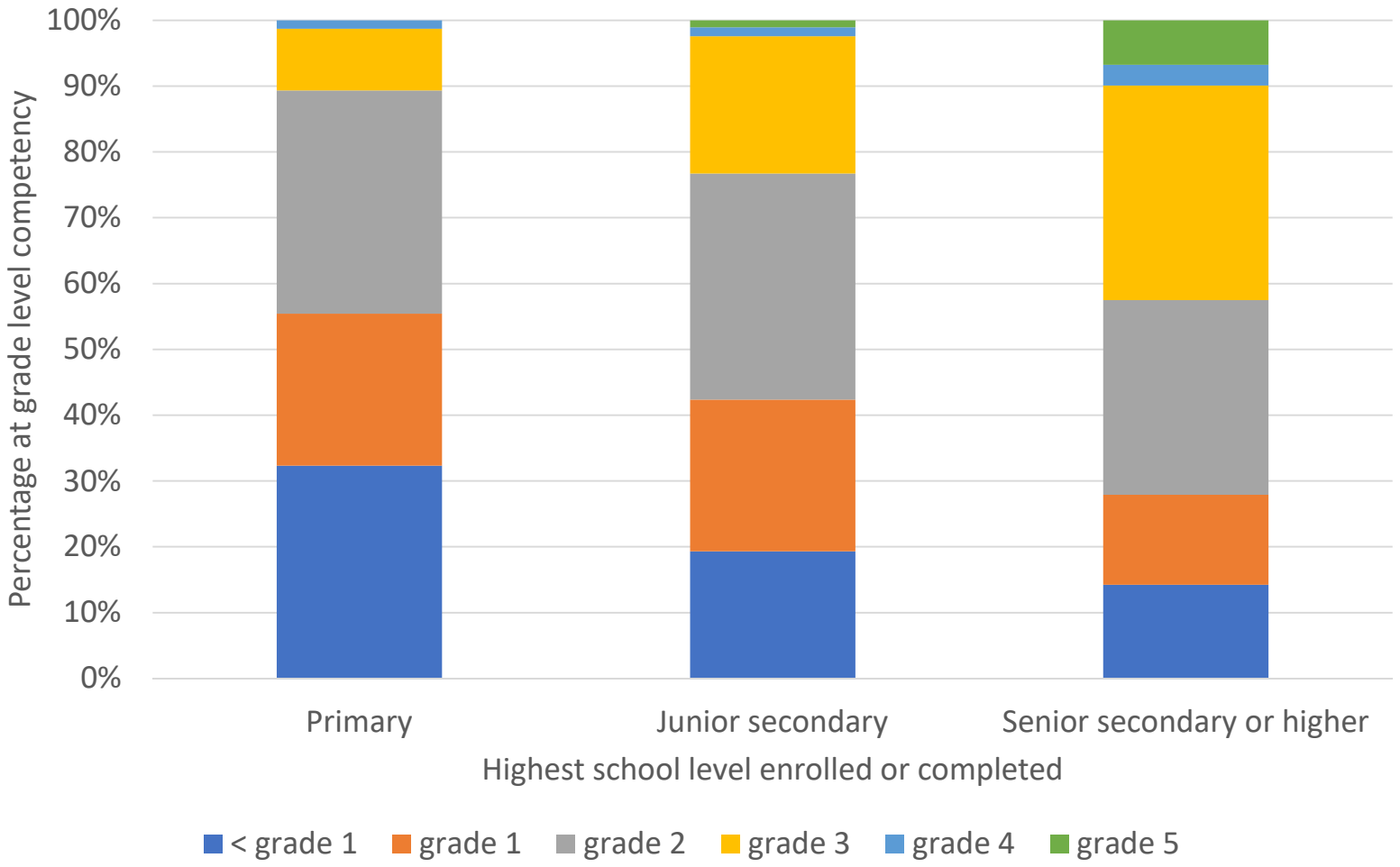

Source: IFLS 5

# Those 15-28 years old still struggle with the easiest questions




Source: IFLS 5

# Grade level competency of 18-28 y.o. lags far behind curriculum




Source: IFLS 5

# We calculate one numeracy score over grades

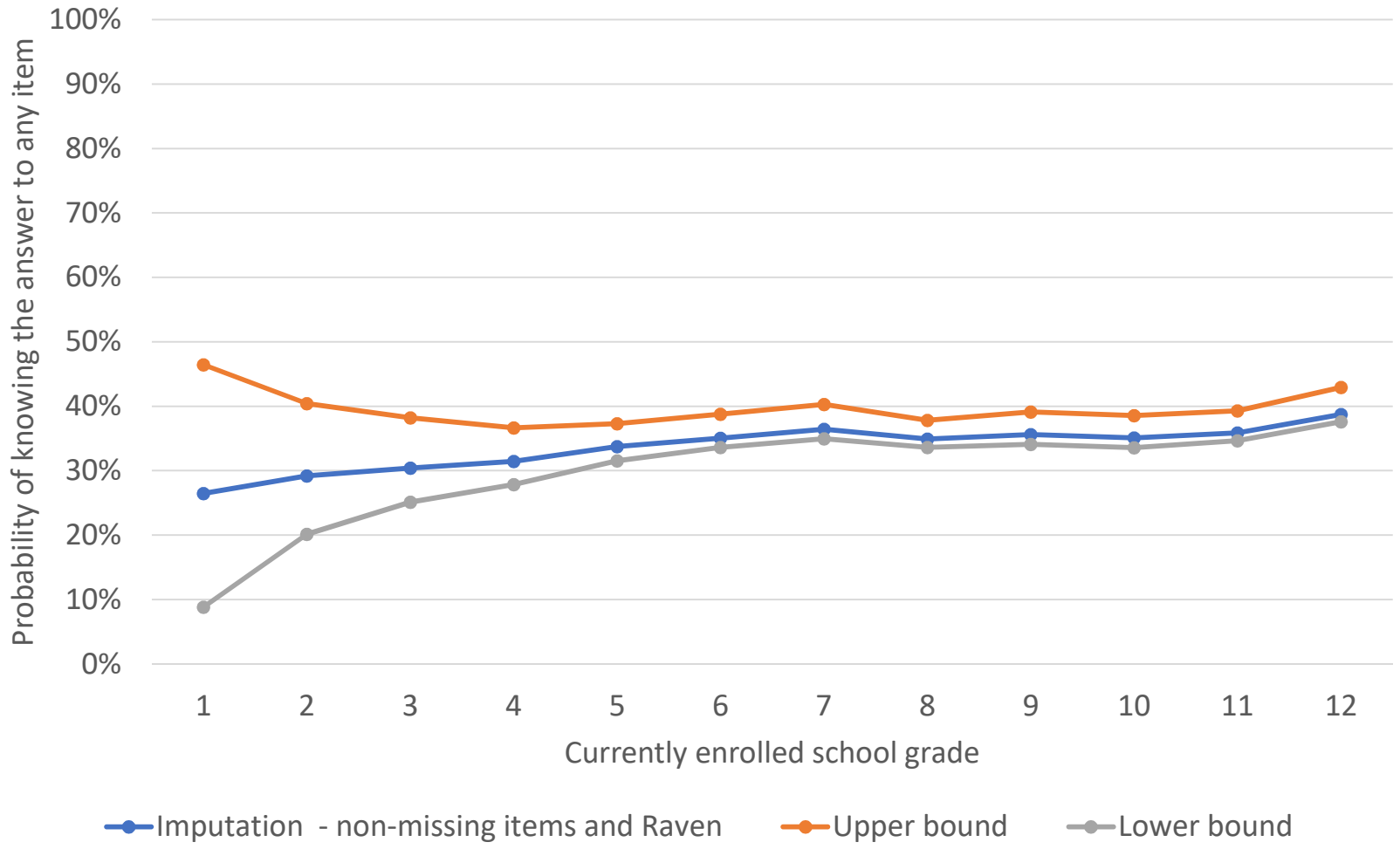
1. Impute missing values

| IFLS 5 | 7–14 | 15–30 |
|---|---|---|
| Percentage generated with at least one imputed item | 17.9 | 8.2 |

2. Item Response Theory using 2 parameter logistic model to generate a numeracy score
   - Takes into account difficulty levels and discrimination power
   - Use group that answered both versions for test equation
   - Predict probability of correct answer for each item
3. Take mean of probabilities
4. Correct for guessing

Interpretation: Mean probability of knowing any of the items

# Flat learning profiles irrespective of the imputation method for currently enrolled students

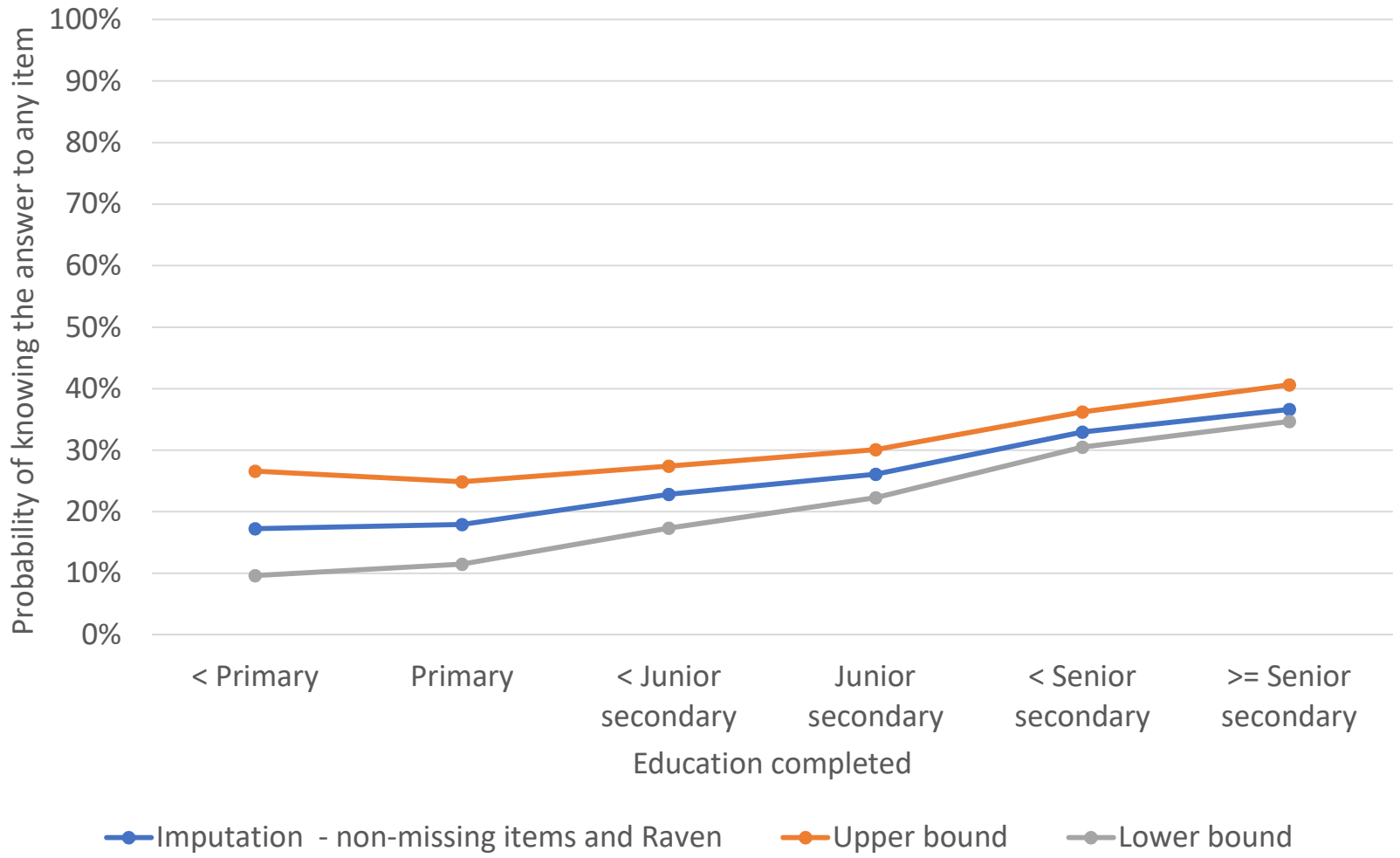



Source: IFLS 5

# Heterogeneous learning levels among those currently enrolled

| | IRT 2014 | IRT 2014 | IRT 2014 |
|---|---|---|---|
| **Male** | -0.034*** | | |
| | (0.005) | | |
| **Other than Java/Bali** | | -0.025*** | |
| | | (0.008) | |
| **Wealth quintile 2** | | | -0.001 |
| | | | (0.008) |
| **Wealth quintile 3** | | | 0.008 |
| | | | (0.008) |
| **Wealth quintile 4** | | | 0.013 |
| | | | (0.008) |
| **Wealth quintile 5 (richest)** | | | 0.020** |
| | | | (0.008) |
| **Constant** | 0.285*** | 0.424*** | 0.408*** |
| | (0.011) | (0.008) | (0.010) |
| **Highest grade completed fixed effects** | Yes | Yes | Yes |
| **Observations** | 10459 | 10459 | 8947 |

# Similar findings for 18-30 y.o.

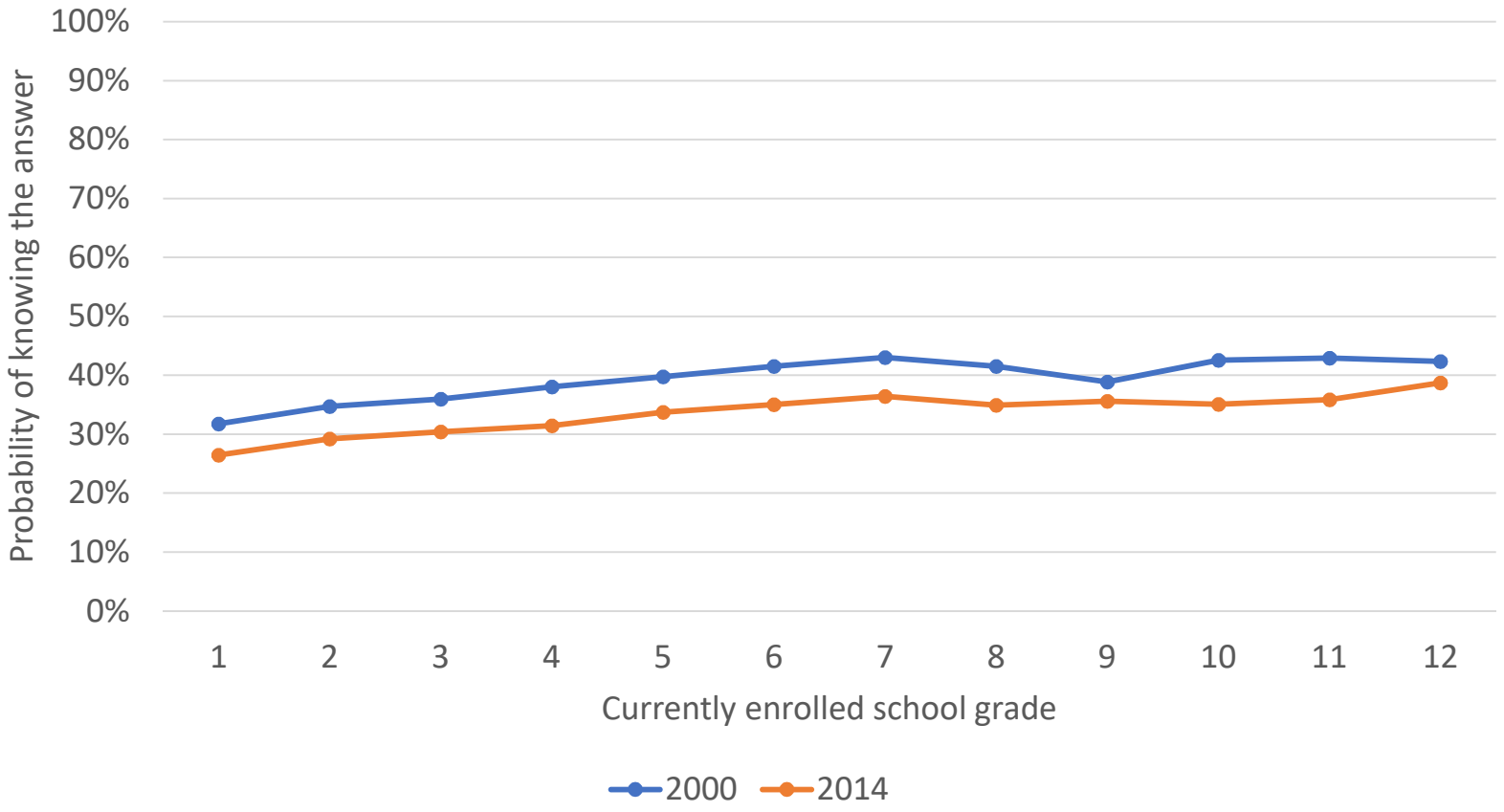



Source: IFLS 5

# Among those 18-30 y.o., wealth heterogeneity disappears

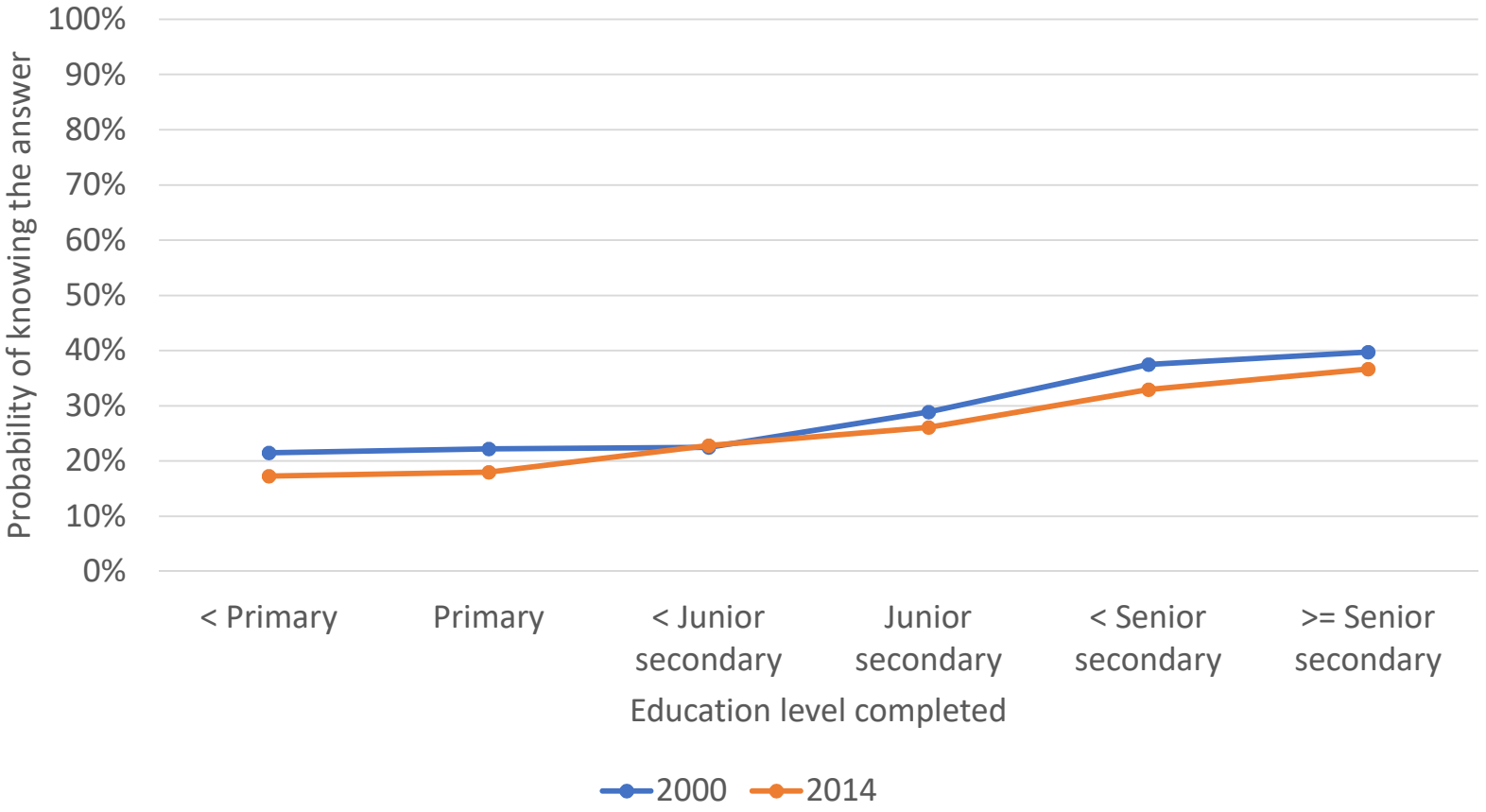
| | IRT 2014 | IRT 2014 | IRT 2014 |
|---|---|---|---|
| **Male** | -0.020*** | | |
| | (0.005) | | |
| **Other than Java/Bali** | | -0.043*** | |
| | | (0.007) | |
| **Wealth quintile 2** | | | -0.004 |
| | | | (0.009) |
| **Wealth quintile 3** | | | 0.004 |
| | | | (0.009) |
| **Wealth quintile 4** | | | 0.005 |
| | | | (0.009) |
| **Wealth quintile 5 (richest)** | | | -0.002 |
| | | | (0.009) |
| **Constant** | 0.190*** | 0.198*** | 0.180*** |
| | (0.013) | (0.014) | (0.014) |
| **Highest level completed fixed effects** | Yes | Yes | Yes |
| **Observations** | 9284 | 9284 | 8144 |

# Numeracy skills deteriorated between 2000 and 2014 for currently enrolled students in all grades




| | 2000 | 2014 |
|---|---|---|
| **Mean** | 38.8 | 33.6 |
| **Coefficient** | | -5.9 (p=0.000) |

# Deteriorating numeracy skills of 18-24 y.o. confirm downward trend




| | 2000 | 2014 |
|---|---|---|
| **Mean** | 31.2 | 31.4 |
| **Coefficient** | | -3.2 (p=0.000) |

# Conclusions

Three takeaway points

1. Learning starts low
2. Flat learning profiles: little improvement as higher schooling is attained
3. No improvement, even slight decline, between 2000 and 2014

- Limitations
  - Instrument contains few items
  - Respondents of a household survey might not take the test seriously
- Robustness checks do not reject our results
  - Findings in line with literature
  - Childen enrolled in primary school in IFLS mostly score better than enrolled children in Afkar et al. survey data (BERMUTU in 2011)

# Thank You!

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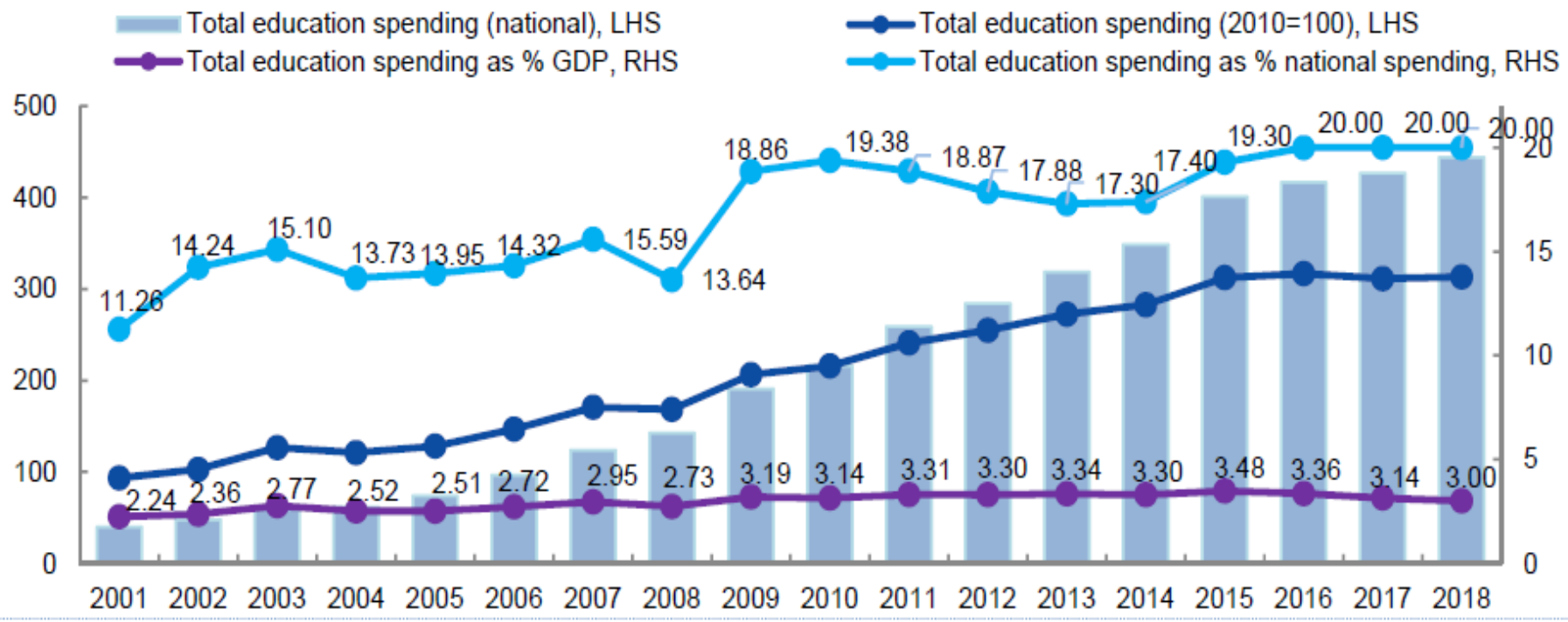
# Expenditures on education have increased threefold between 2000 and 2015 in real terms




Source: World Bank COFIS database using MOF data and Presidential Regulation on budget details of respective years

NOTE: LHS IDR trillion, RHS percentage of GDP and spending

Source: Diop, Ndiame; Gil Sander, Frederico. 2018. *Indonesia Economic Quarterly: Learning more, growing faster (English)*. Washington, D.C. : World Bank Group.

# The instrument has acceptable validity, but would benefit from more items

## Validity

- Unidimensional based on factor analysis

## Reliability

- Cronbach's alpha is slightly too low (0.67,  at least 0.7 preferred)
    - Shows need for more items, as item-test correlations are between 0.42 and 0.63

# Using panel sample, we find heterogeneity by wealth quintile and some decay among older children