

RISE PROGRAMME IN INDONESIA

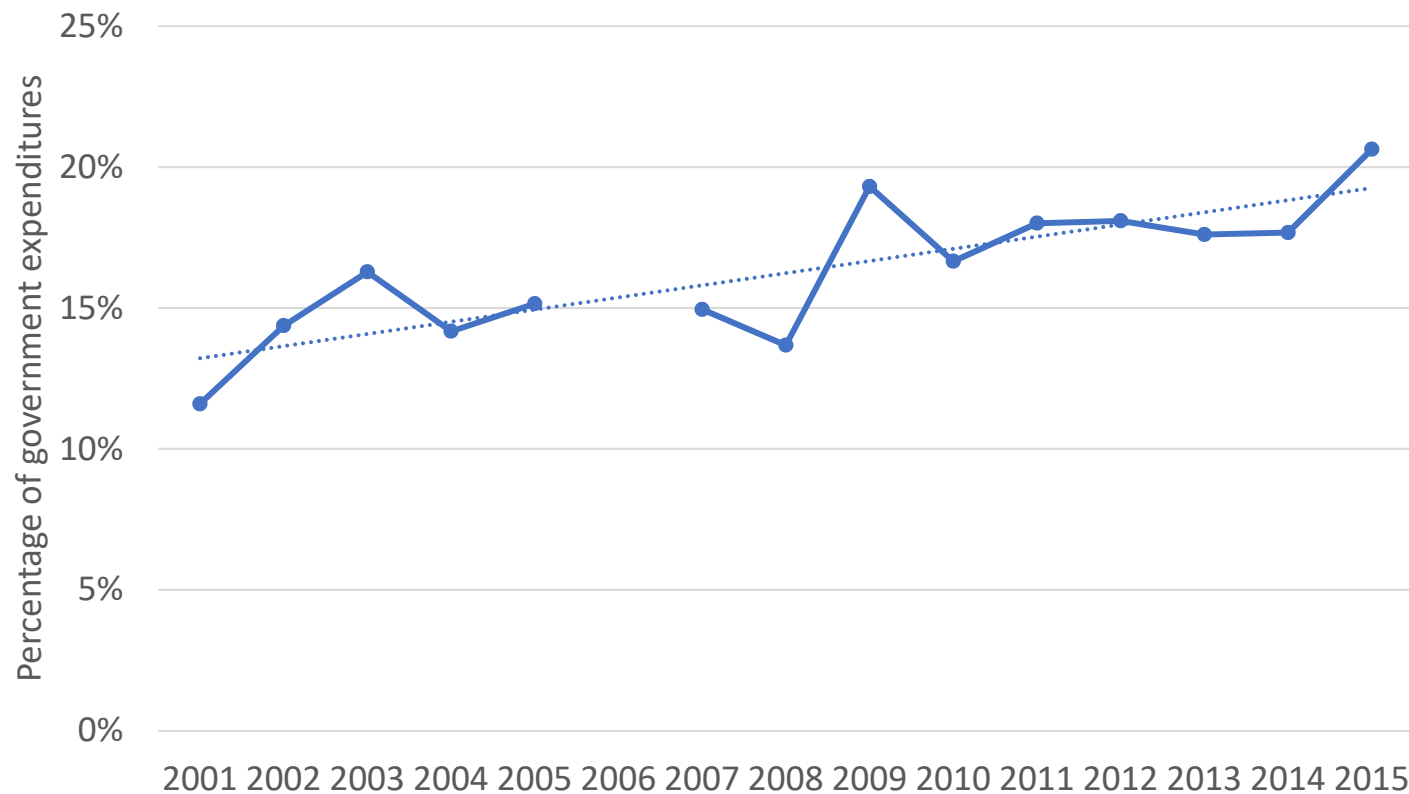
Schooling and Learning Gaps in Indonesia: Magnitude and Trends

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

Preliminary Results

1 November 2018

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



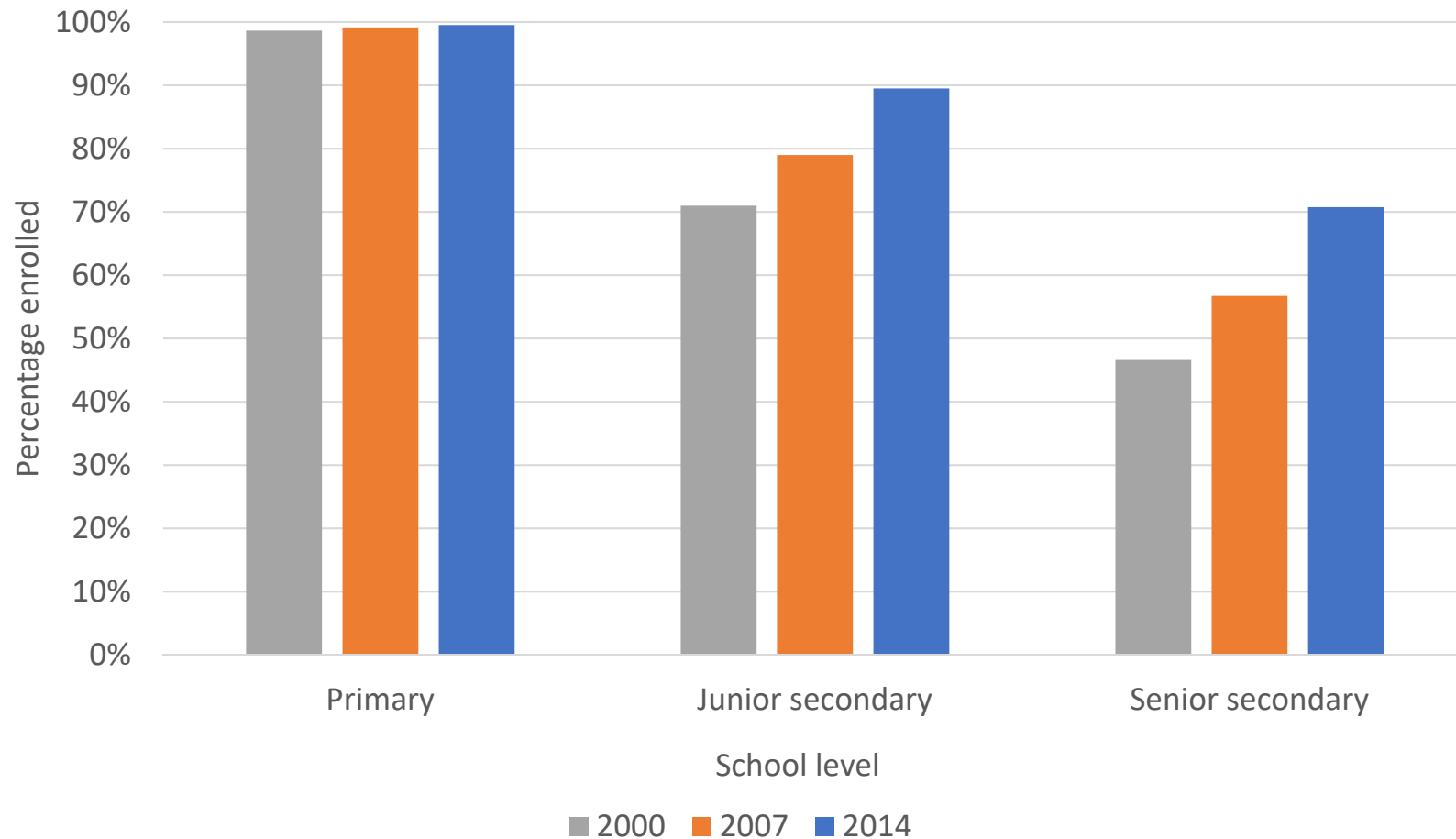
Equivalent to a threefold increase in total education expenditures in real terms

NOTE: Data not available for 2006.

Source: World Bank DataBank

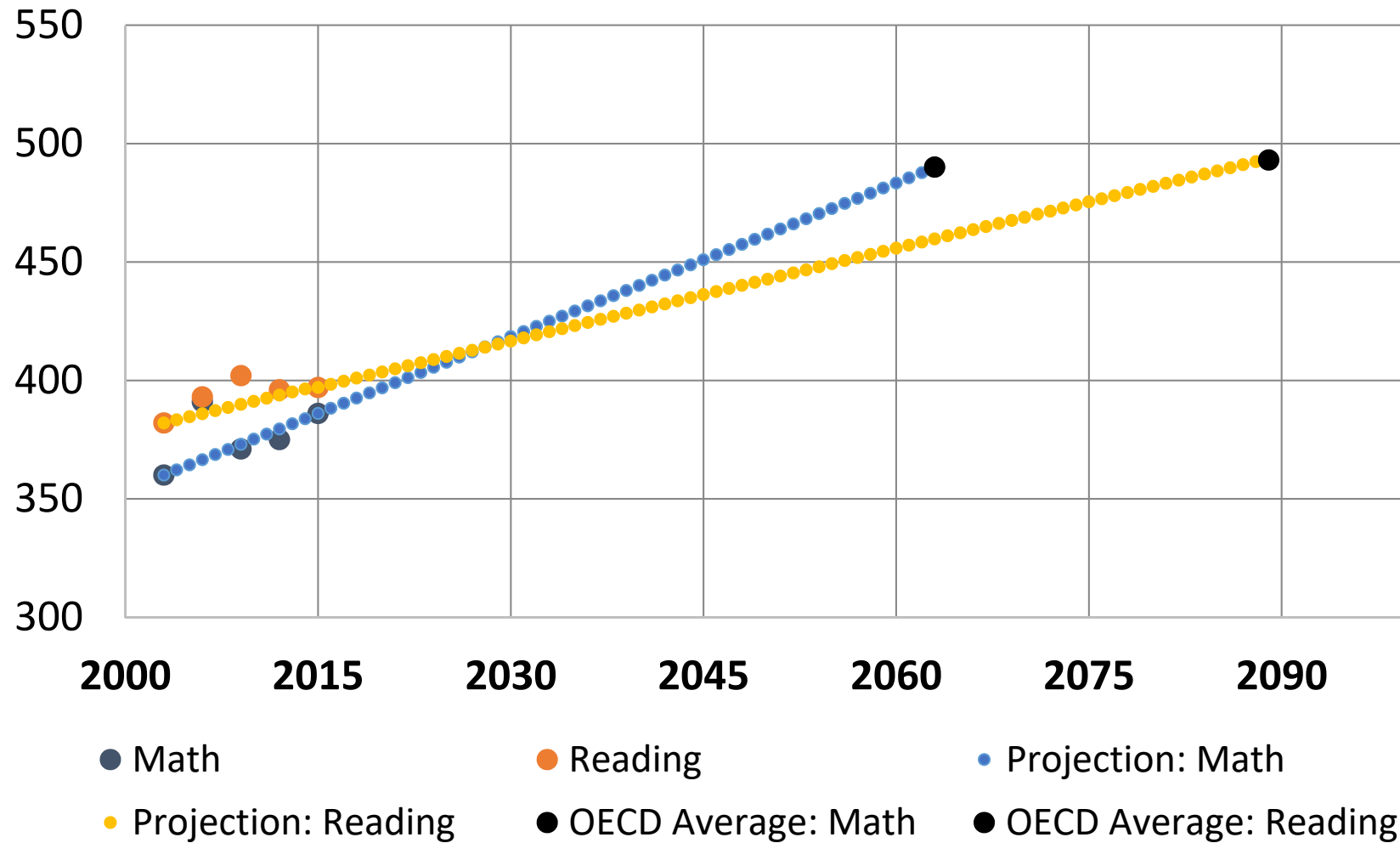
Diop, Ndiame; Gil Sander, Frederico. 2018. *Indonesia Economic Quarterly: Learning more, growing faster (English)*. Washington, D.C. : World Bank Group.

At the same period, primary school enrolment has been universal, while secondary school enrolment has been rising



Source: IFLS 3, 4 and 5

Yet, shallow learning improvements



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

Outline

- Analyze learning levels by grade – the so-called learning profile
- Examine whether the learning profile have improved over 2000 – 2014, along with Indonesia's other development indicators
- Measure schooling and learning inequalities: sex, (limited) region, wealth
- Findings:
 1. Learning profile starts low and remain relatively flat
 2. Learning profile has deteriorated between 2000 and 2014
 3. Some schooling inequalities in 2000. Virtually none by 2014.
 4. Learning gap appears / worsens between some groups

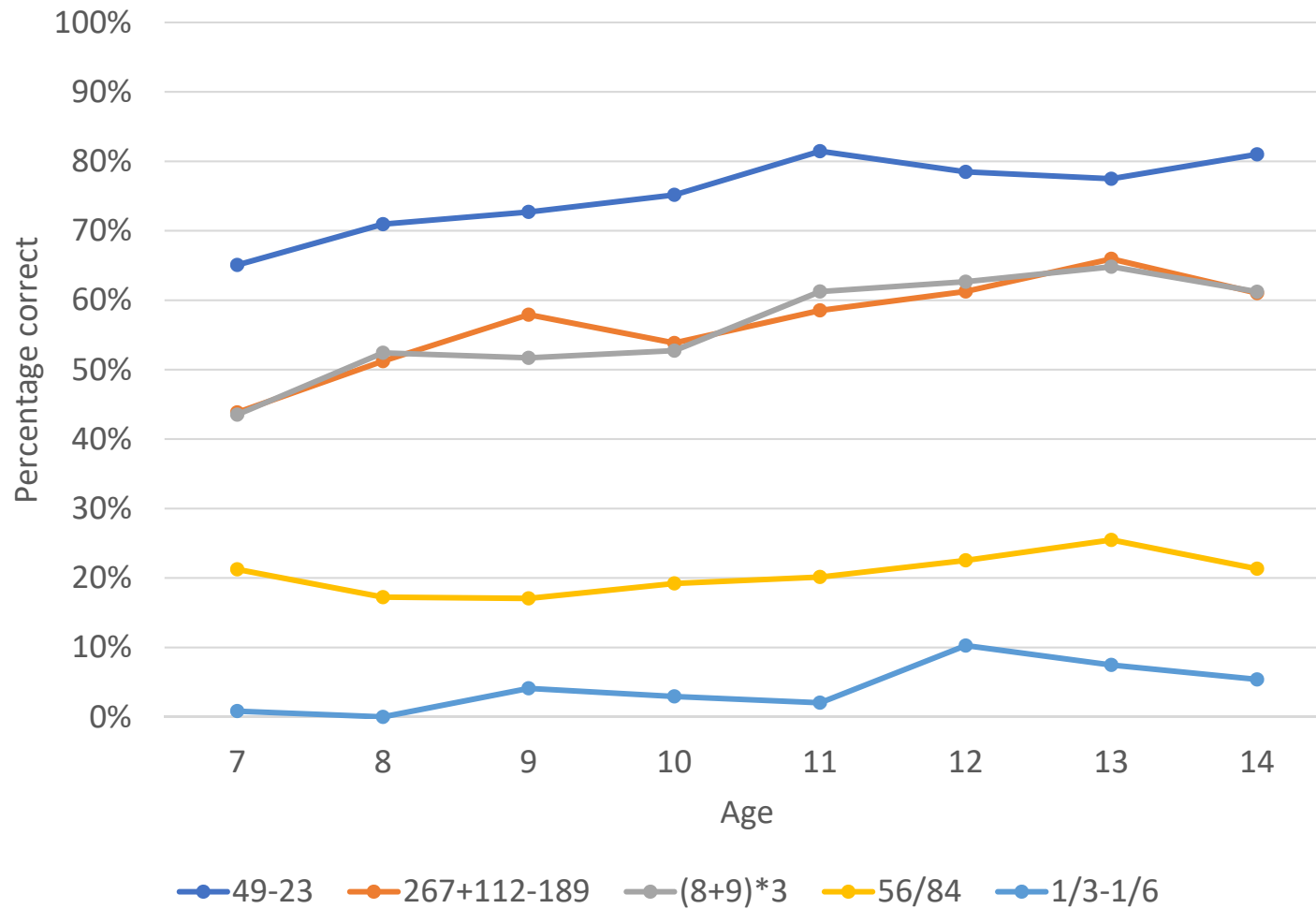
The Indonesia Family Life Survey allows us to generate learning profiles for numeracy skills

- 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

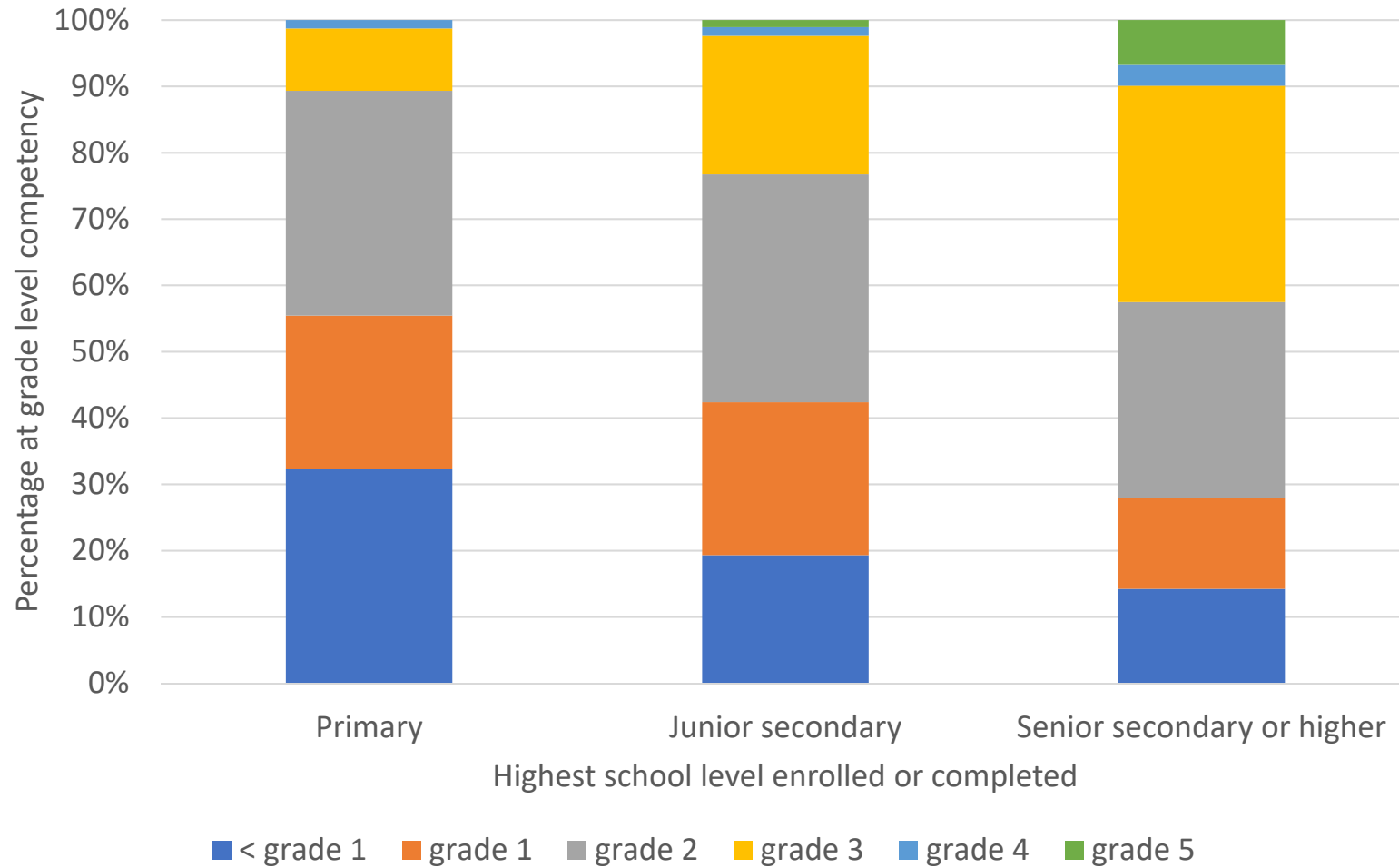
Test items for >=15 y.o.	Grade level
$\frac{56}{84}$	4
(412+213):(243-118)	3
0.76-0.4-0.23	4
(100-65)% of 160 million (in text)	5
5% interest on Rp. 75,000 (in text)	5

Little learning between the age of 7 and 14



Source: IFLS 5

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

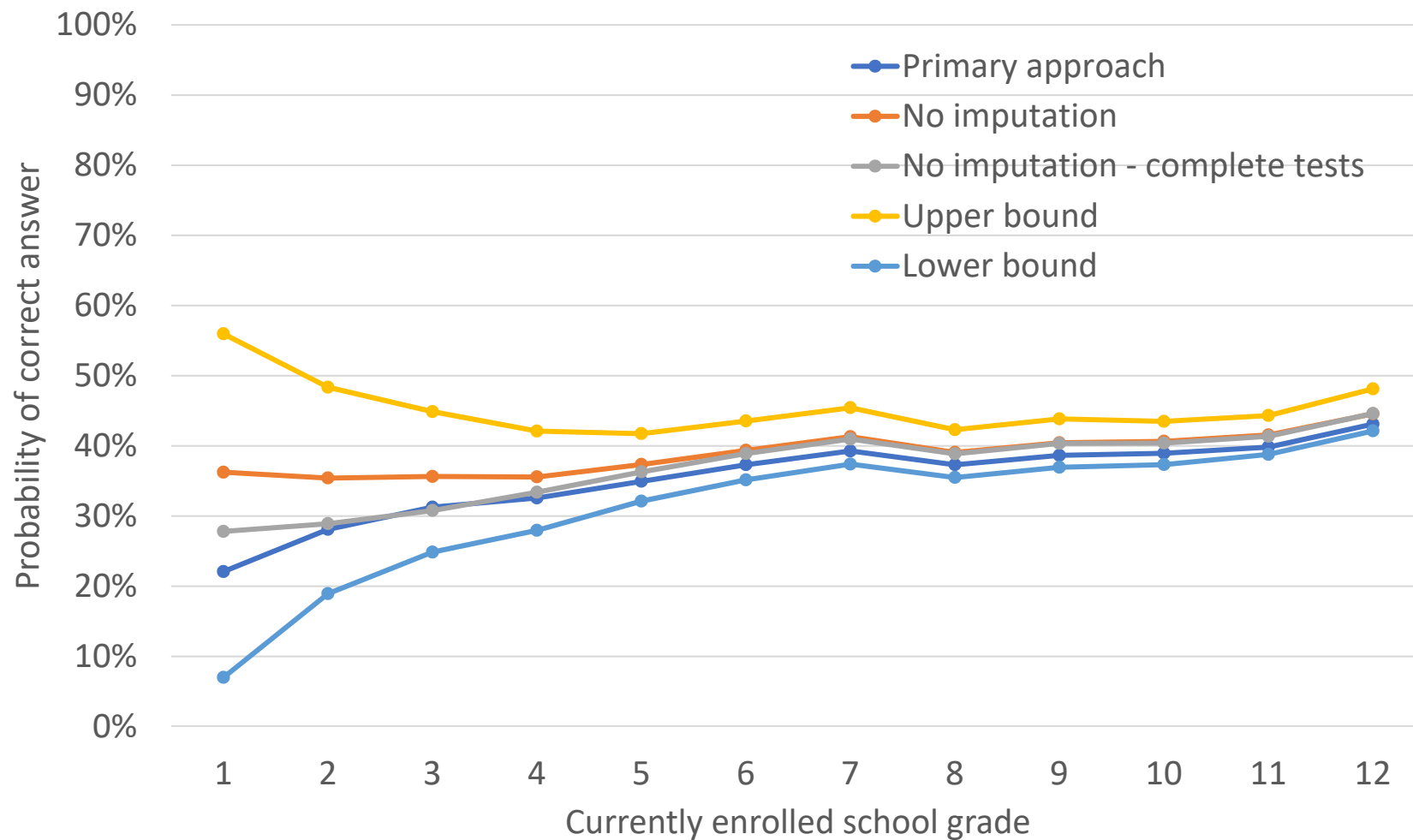
- Takes into account difficulty levels and discrimination power
- Use group that answered both versions for test equation
- Predict probability of correct answer for each item

3. Take mean of probabilities

4. Correct for guessing

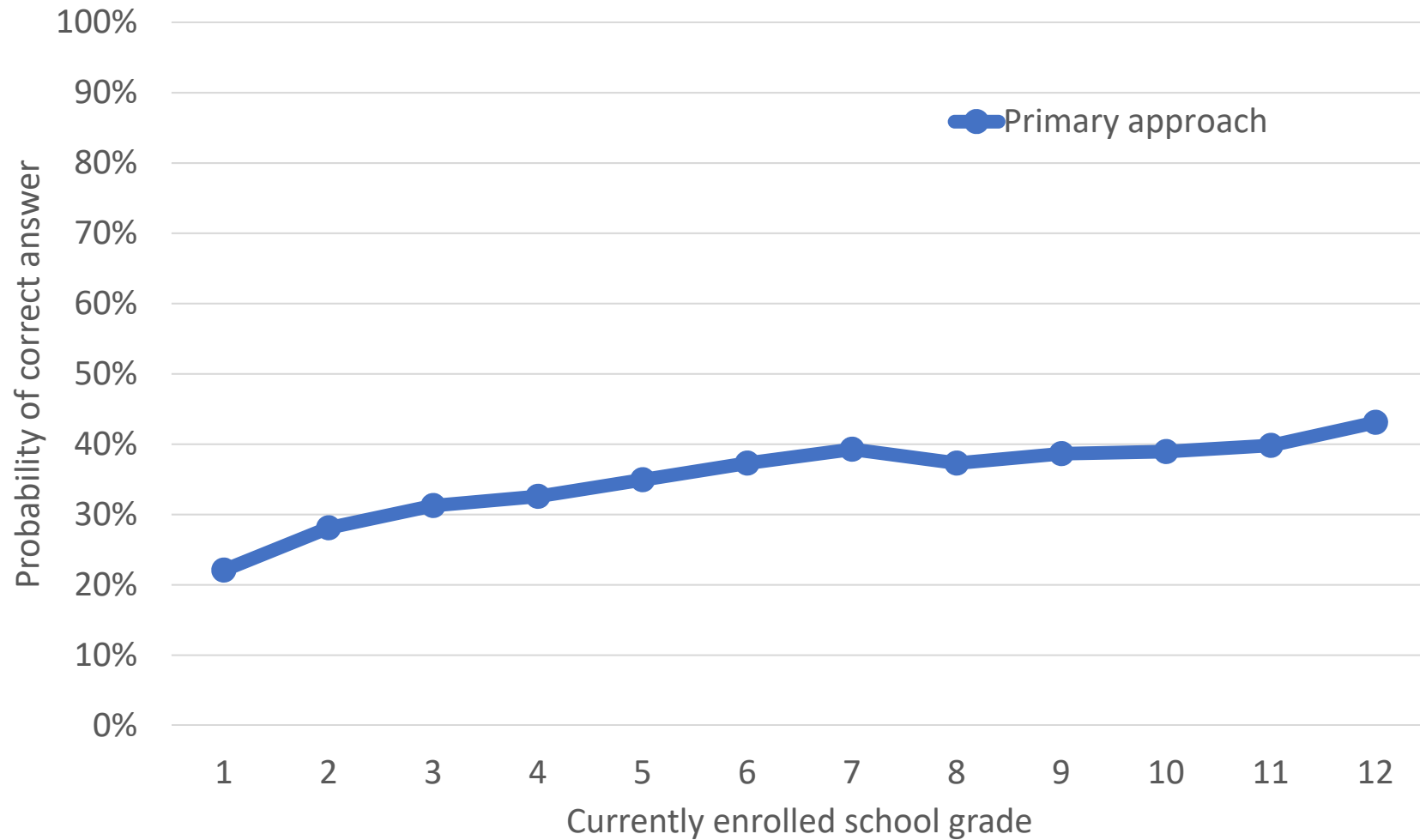
Interpretation: Mean probability of knowing any of the items

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



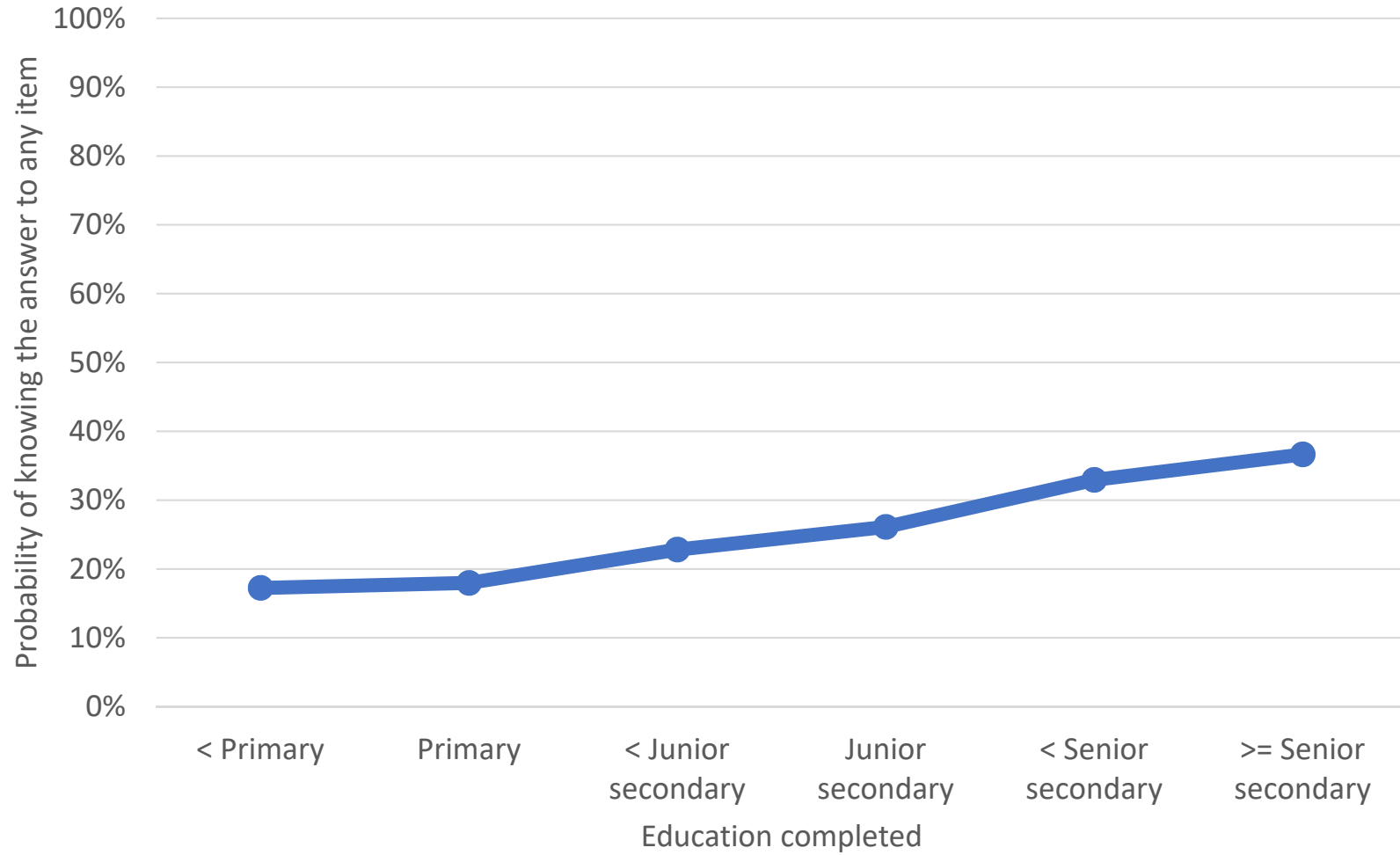
Source: IFLS 5

Flat learning profile for currently enrolled students



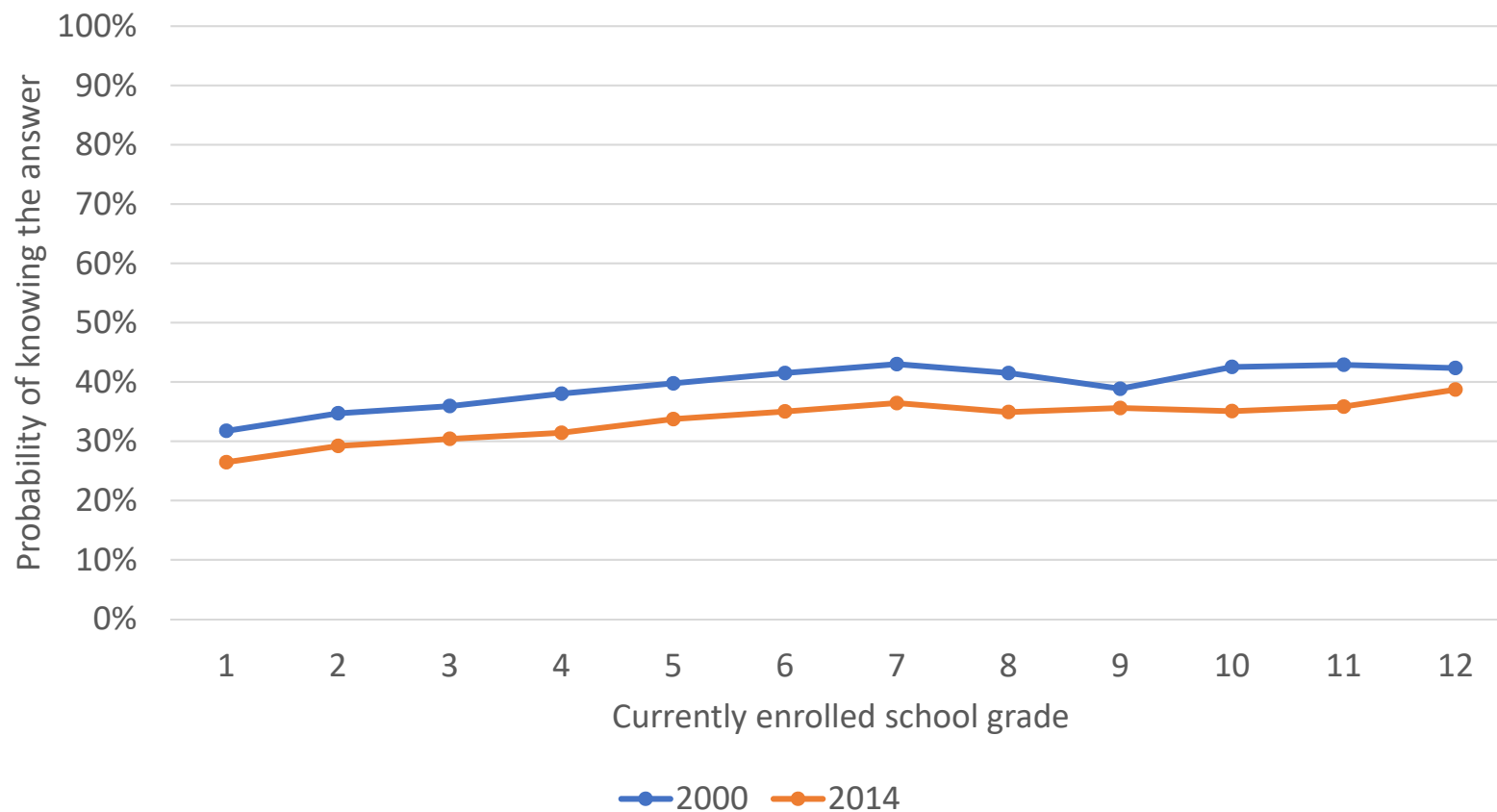
Source: IFLS 5

Similar findings for 18-30 y.o.



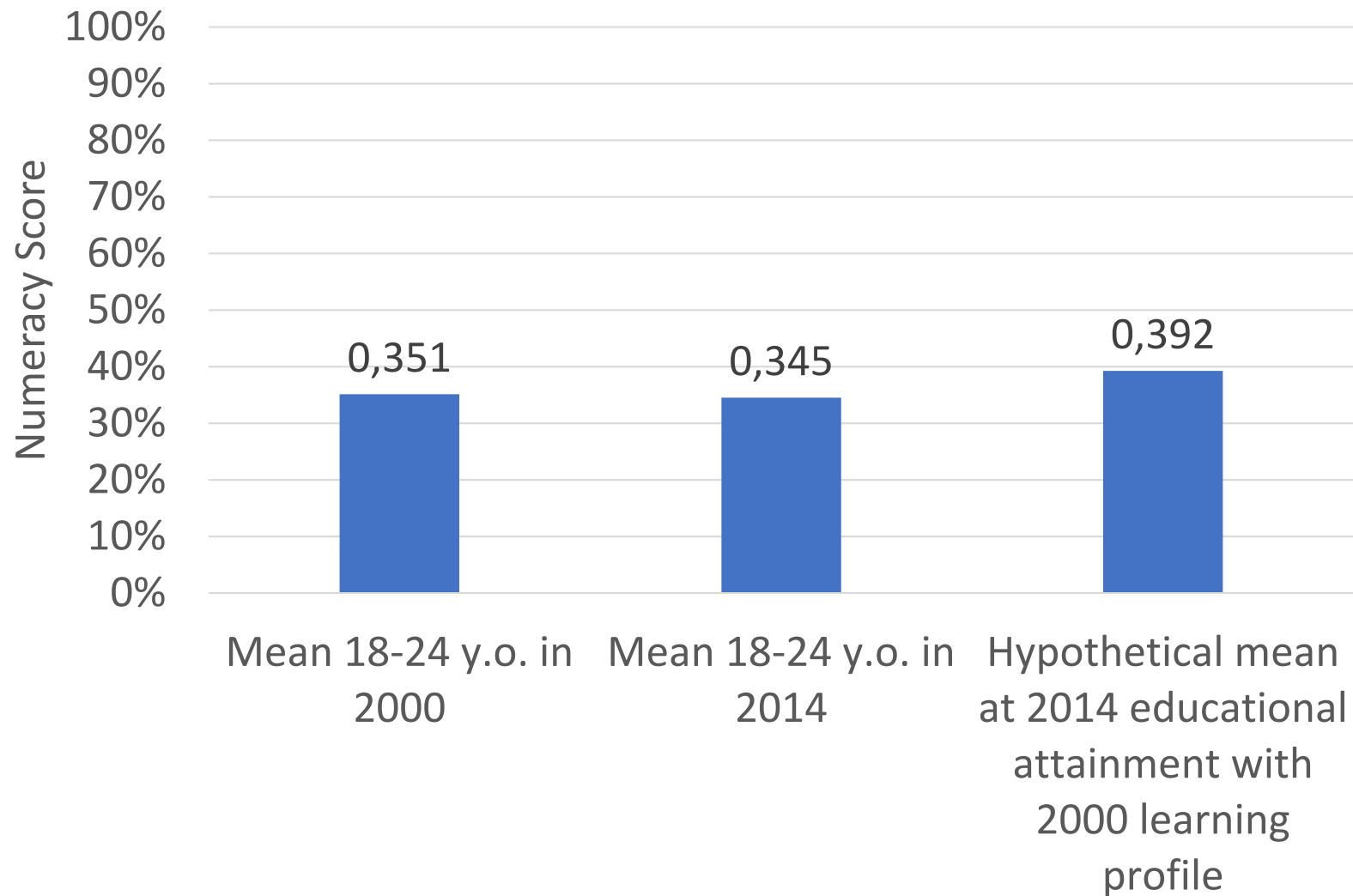
Source: IFLS 5

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



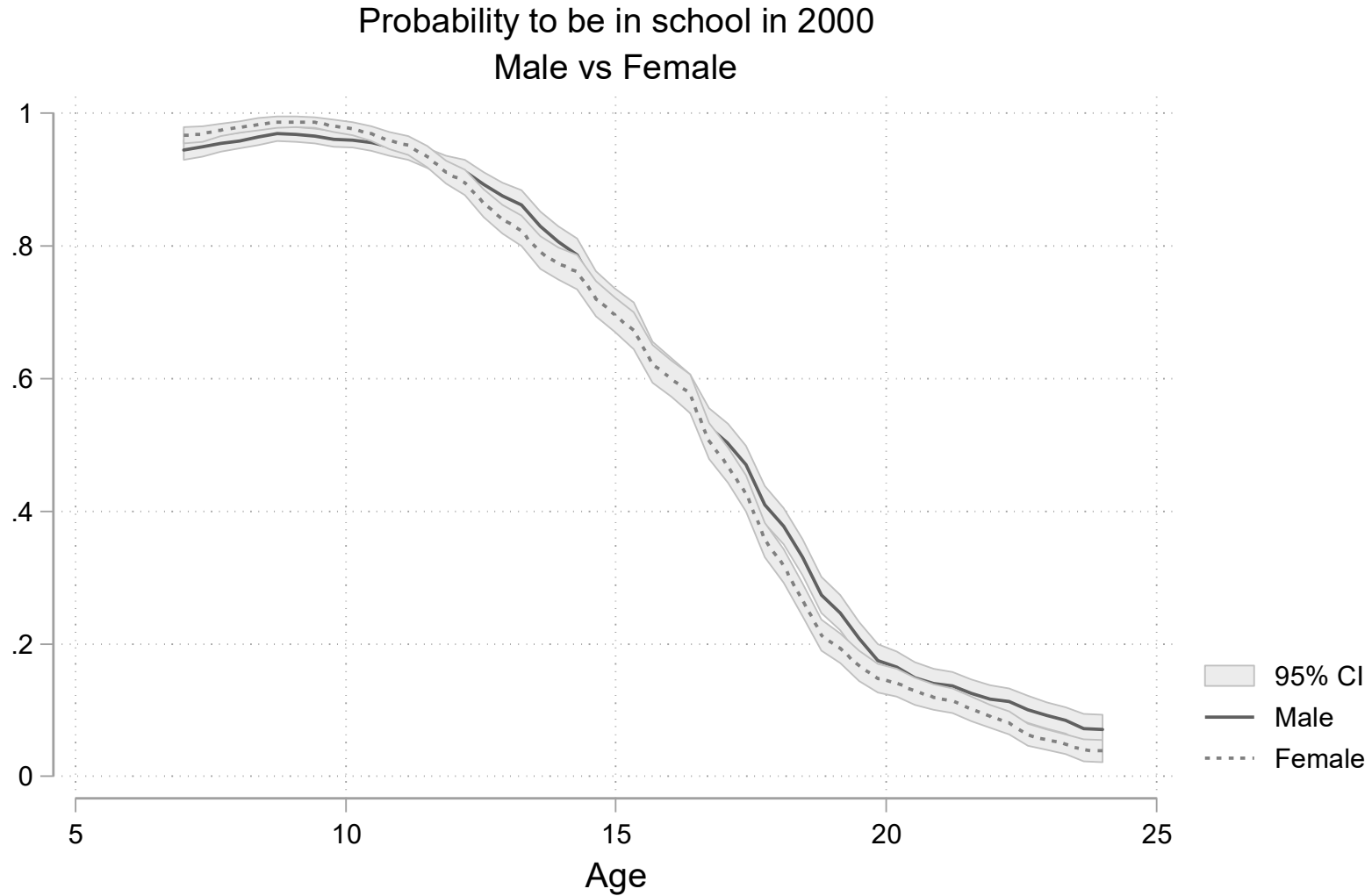
	2000	2014
Mean	38.8	33.6
Coefficient		-5.9 (p=0.000)

Simulations for 18-24 y.o. show no learning gain. Large increases in schooling could be a contributor

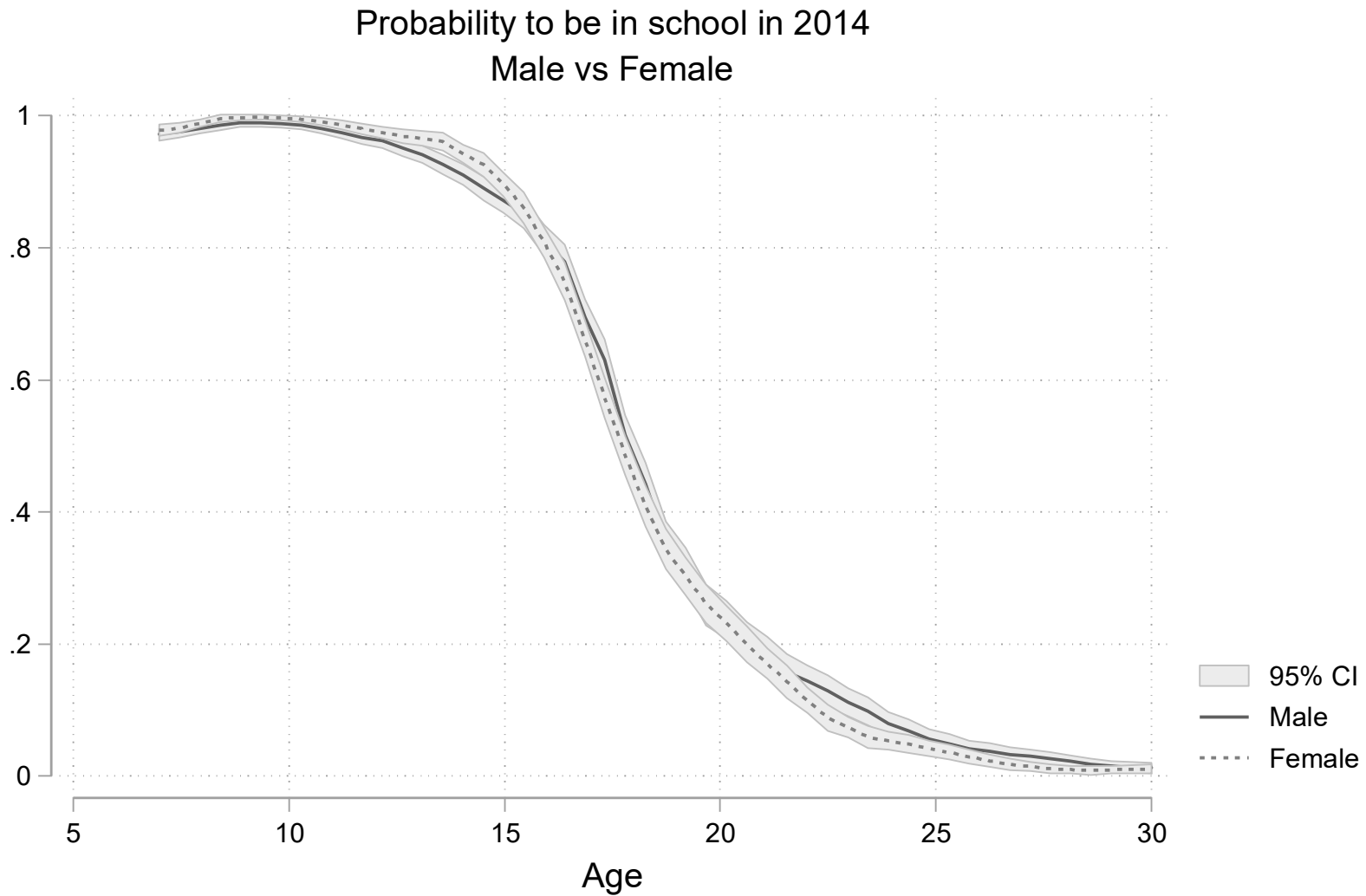


Schooling Inequality

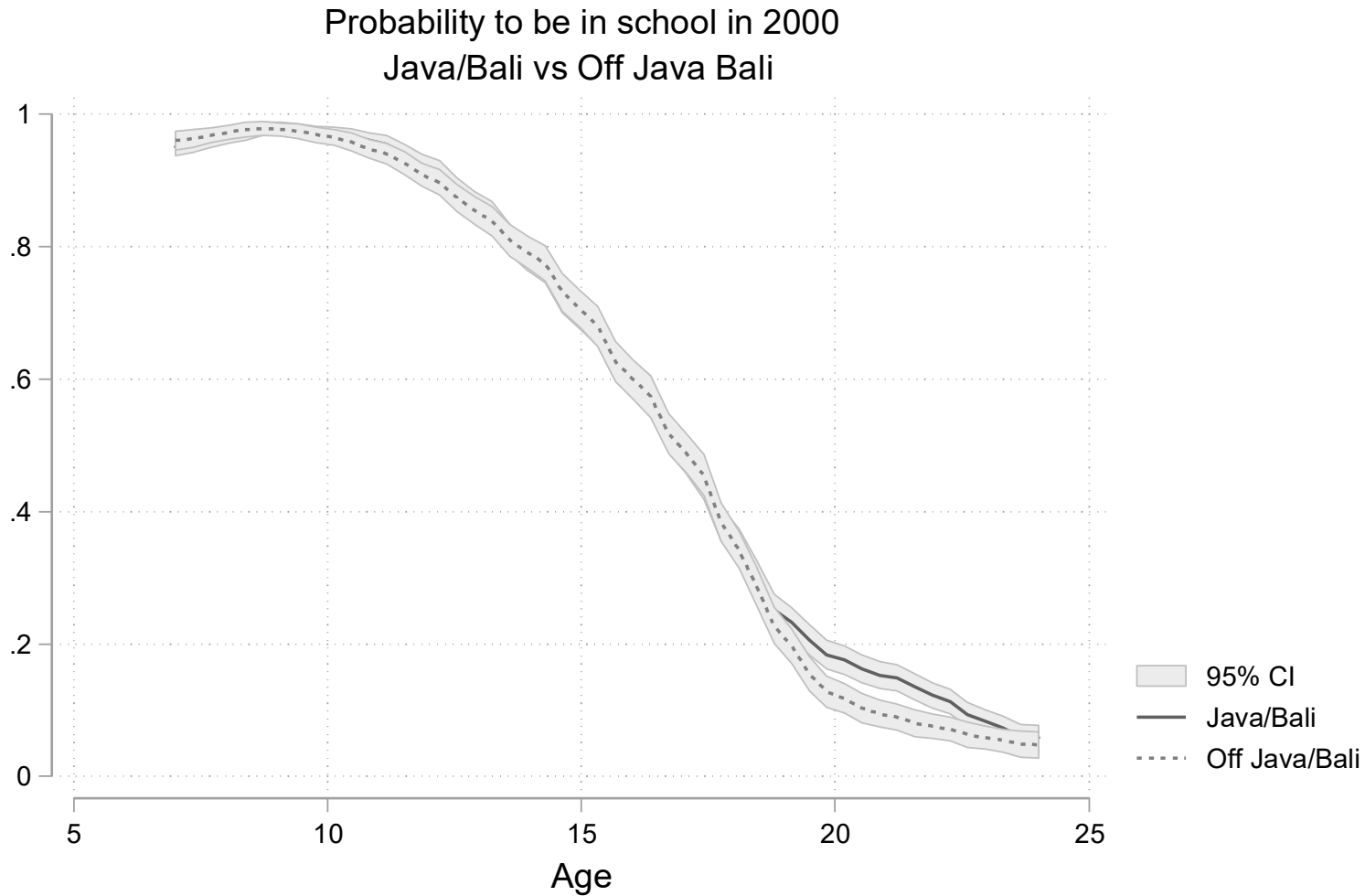
In 2000, boys have on average 1.6 percentage point higher probability to be in school



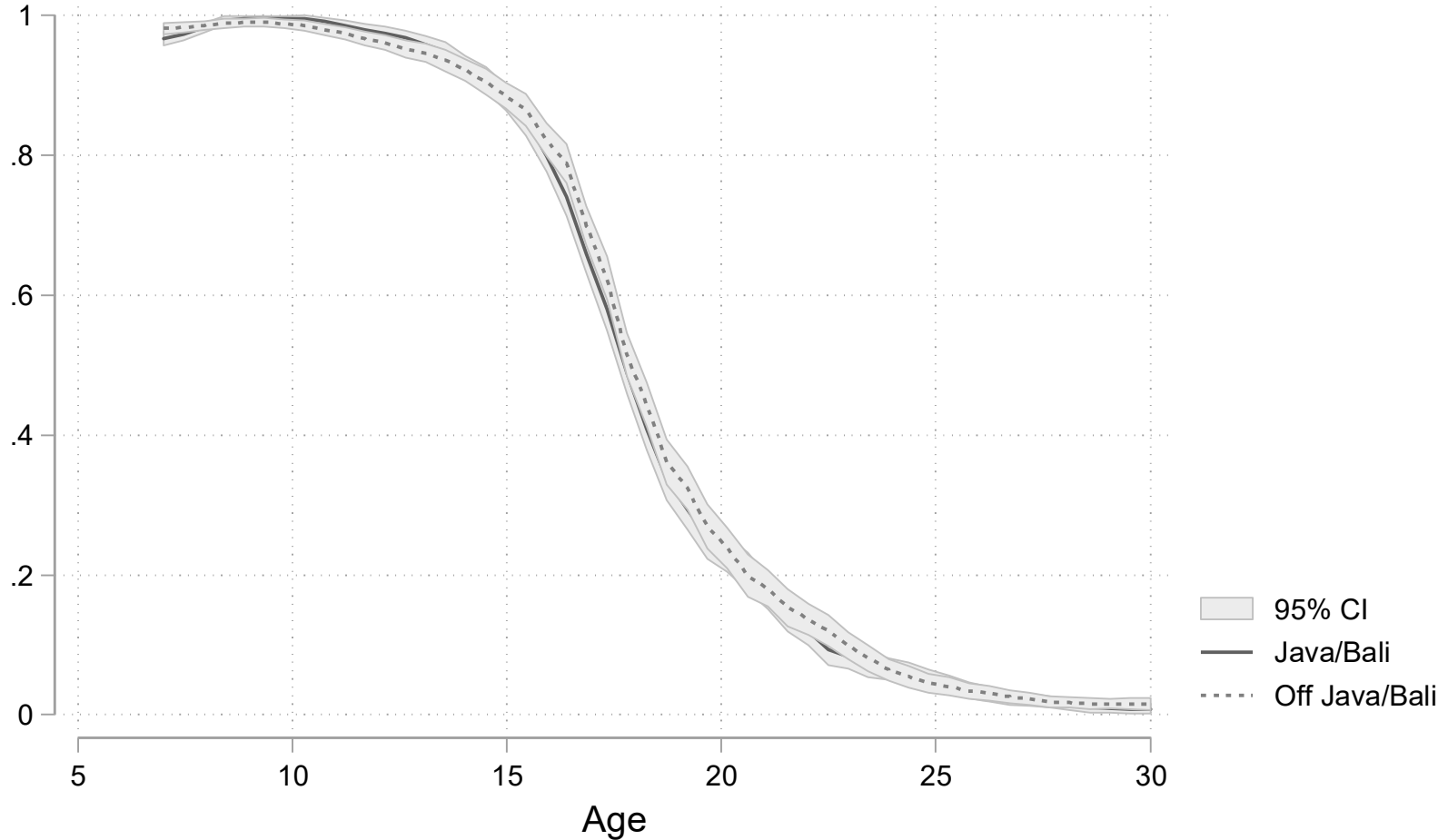
By 2014, the gap is not statistically different from zero



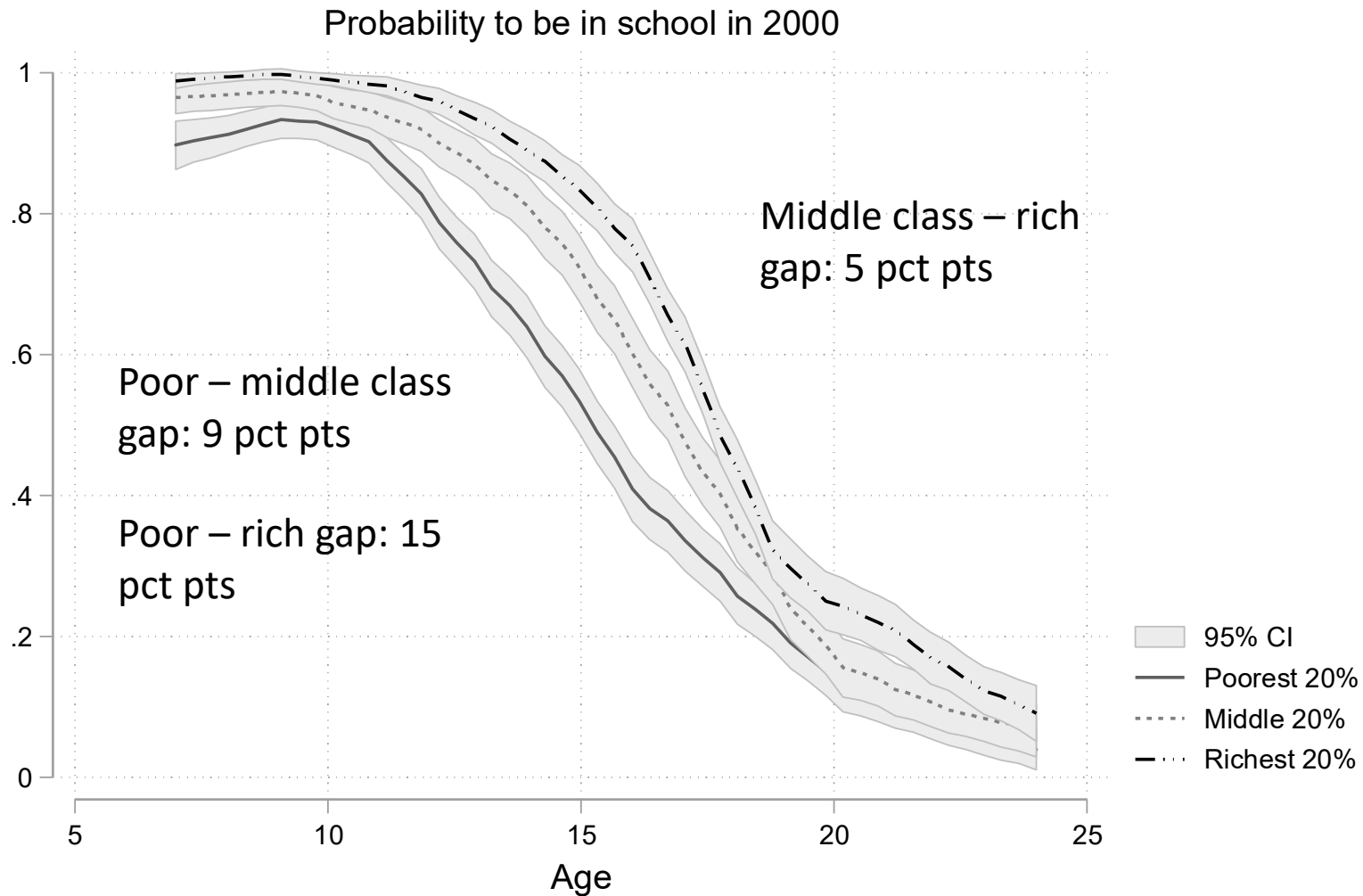
Between 2000 and 2014, on average there were no evidence of a schooling gap between individuals in Java/Bali and off Java/Bali



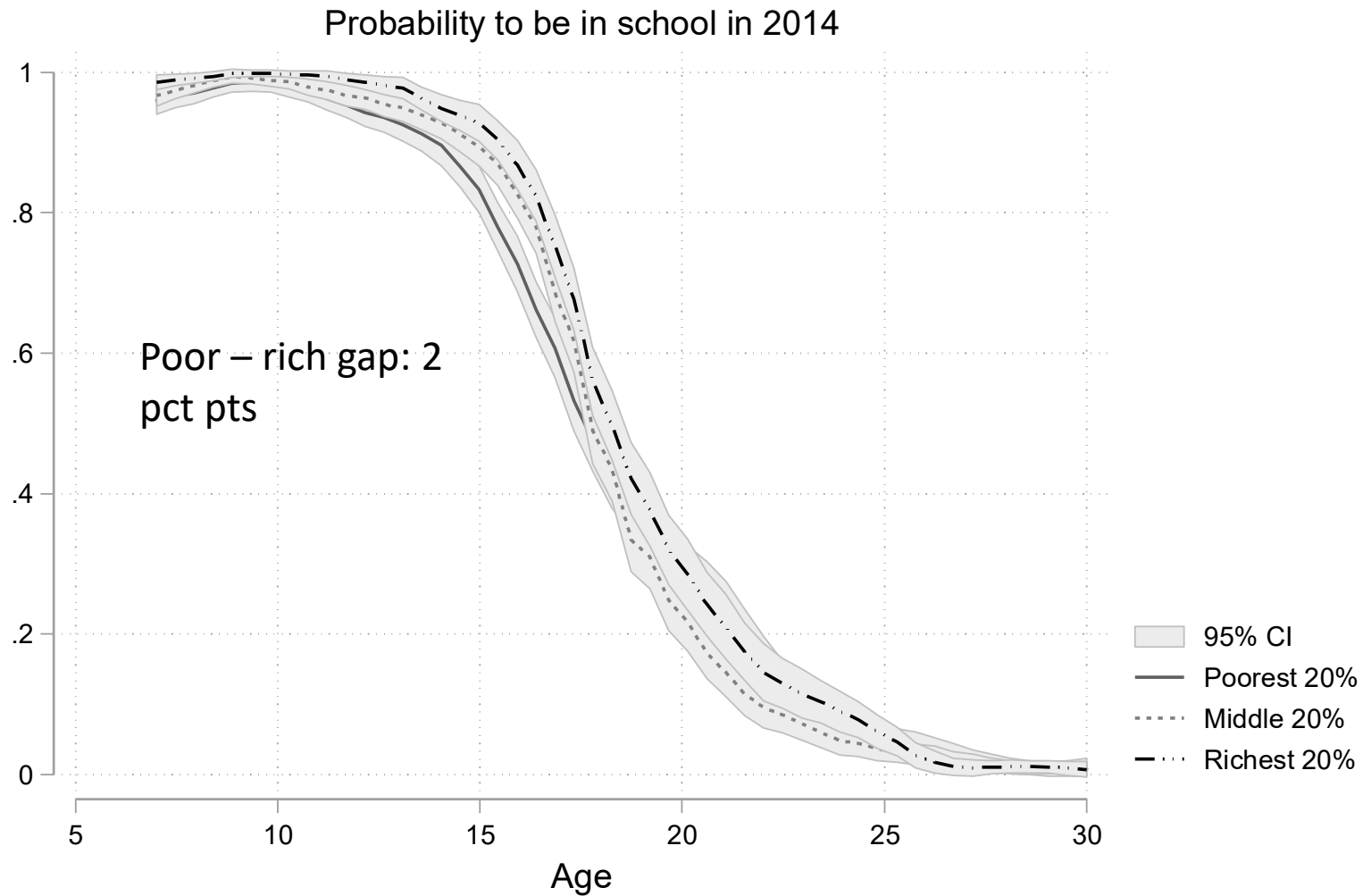
Probability to be in school in 2014 Java/Bali vs Off Java Bali



The poor, middle class, and the rich have significantly different schooling patterns in 2000

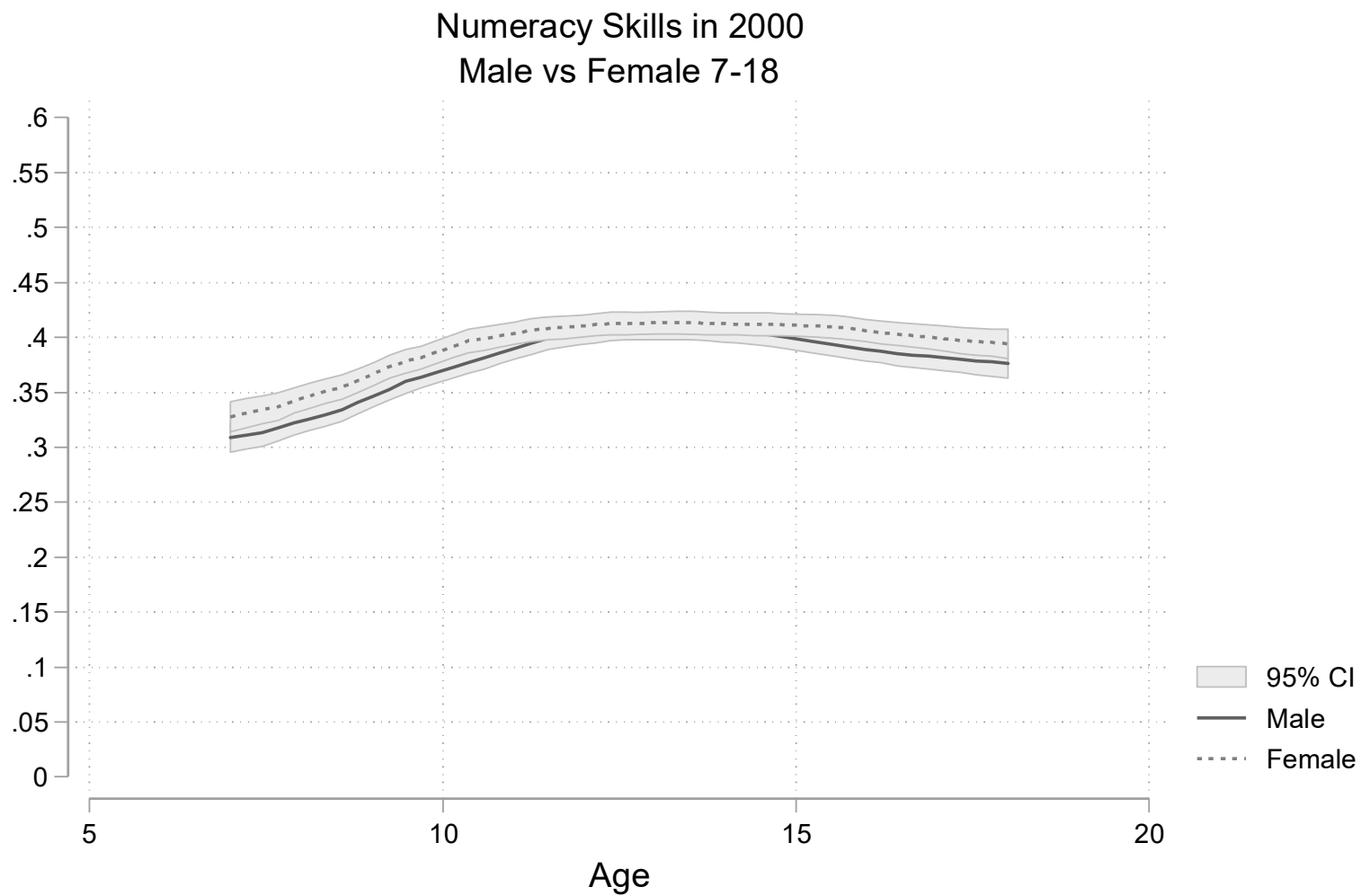


By 2014, the poor have largely caught up

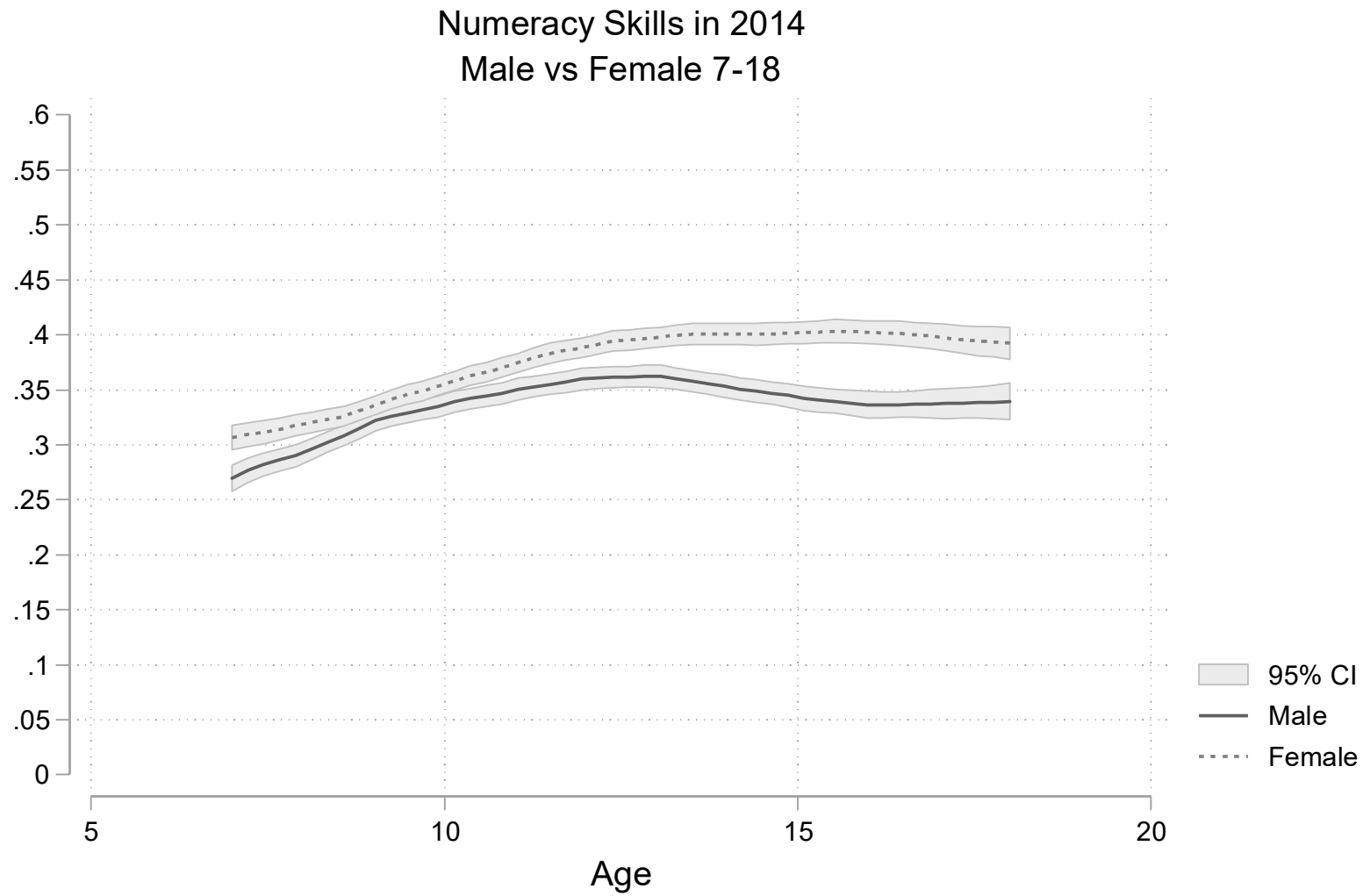


Learning Inequality

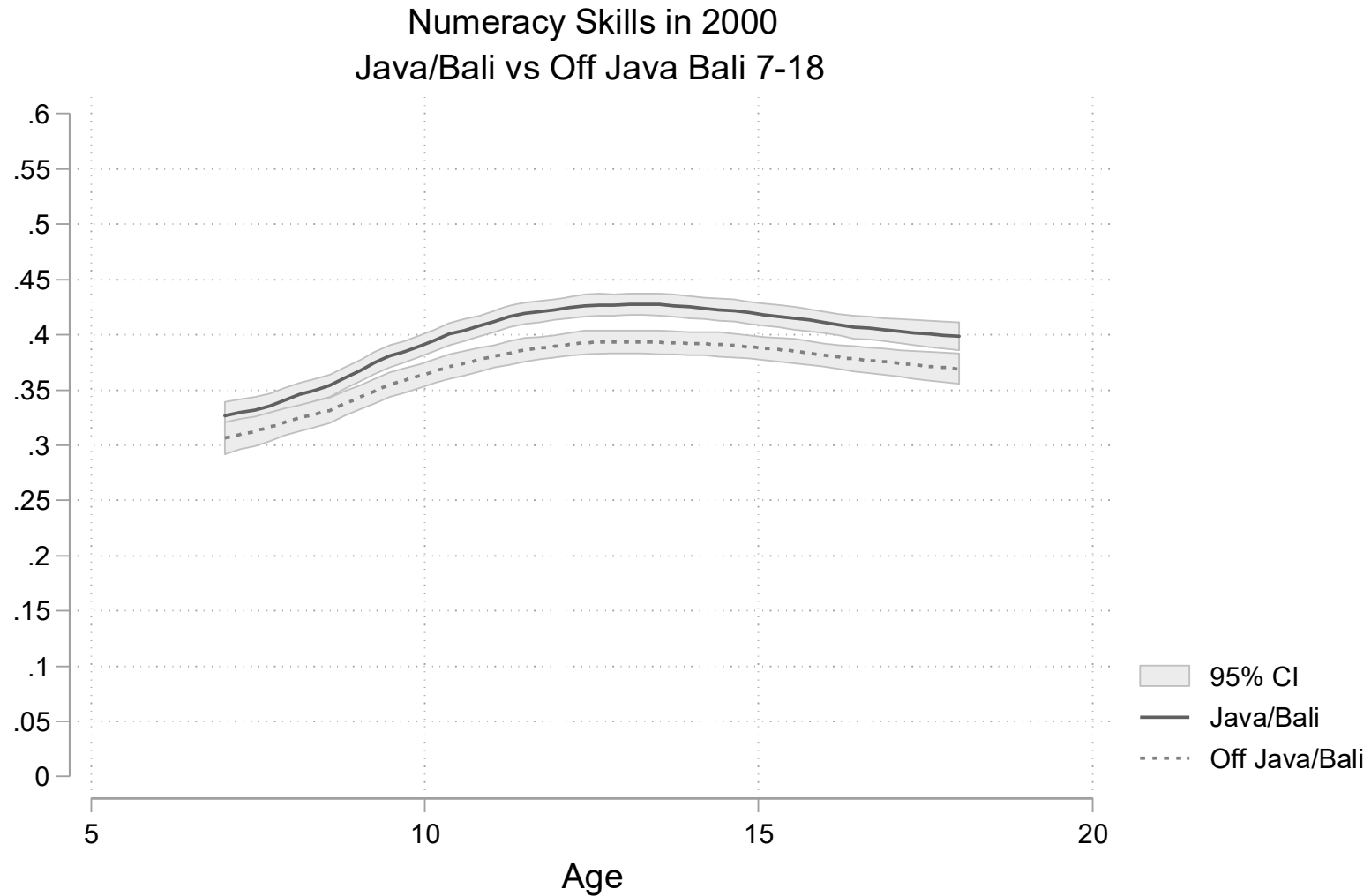
Girls have higher numeracy in 2000, by 1.7 percentage points



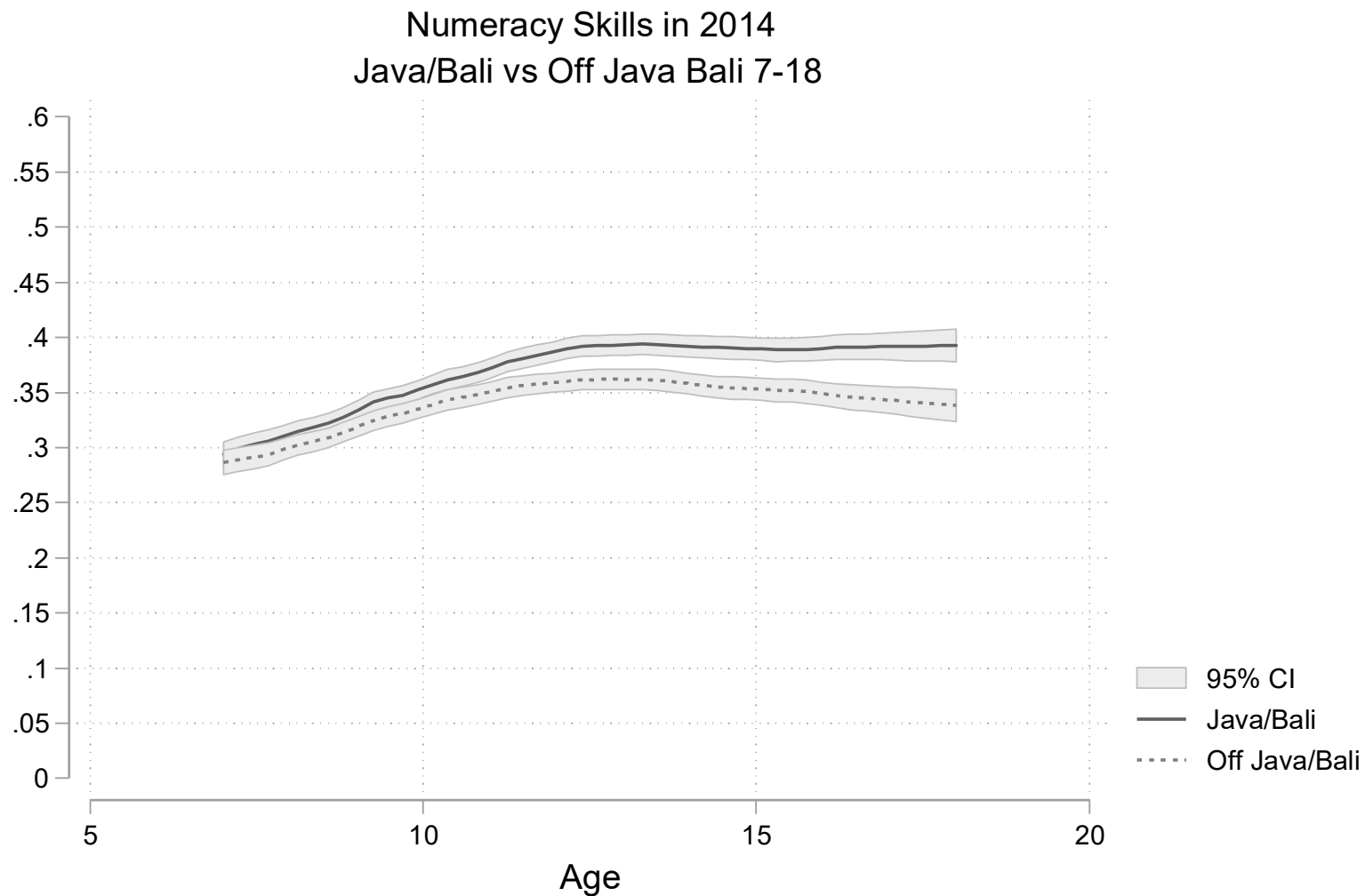
The gap increased to 4.3 pct pts by 2014. This is large given the low & declining overall numeracy



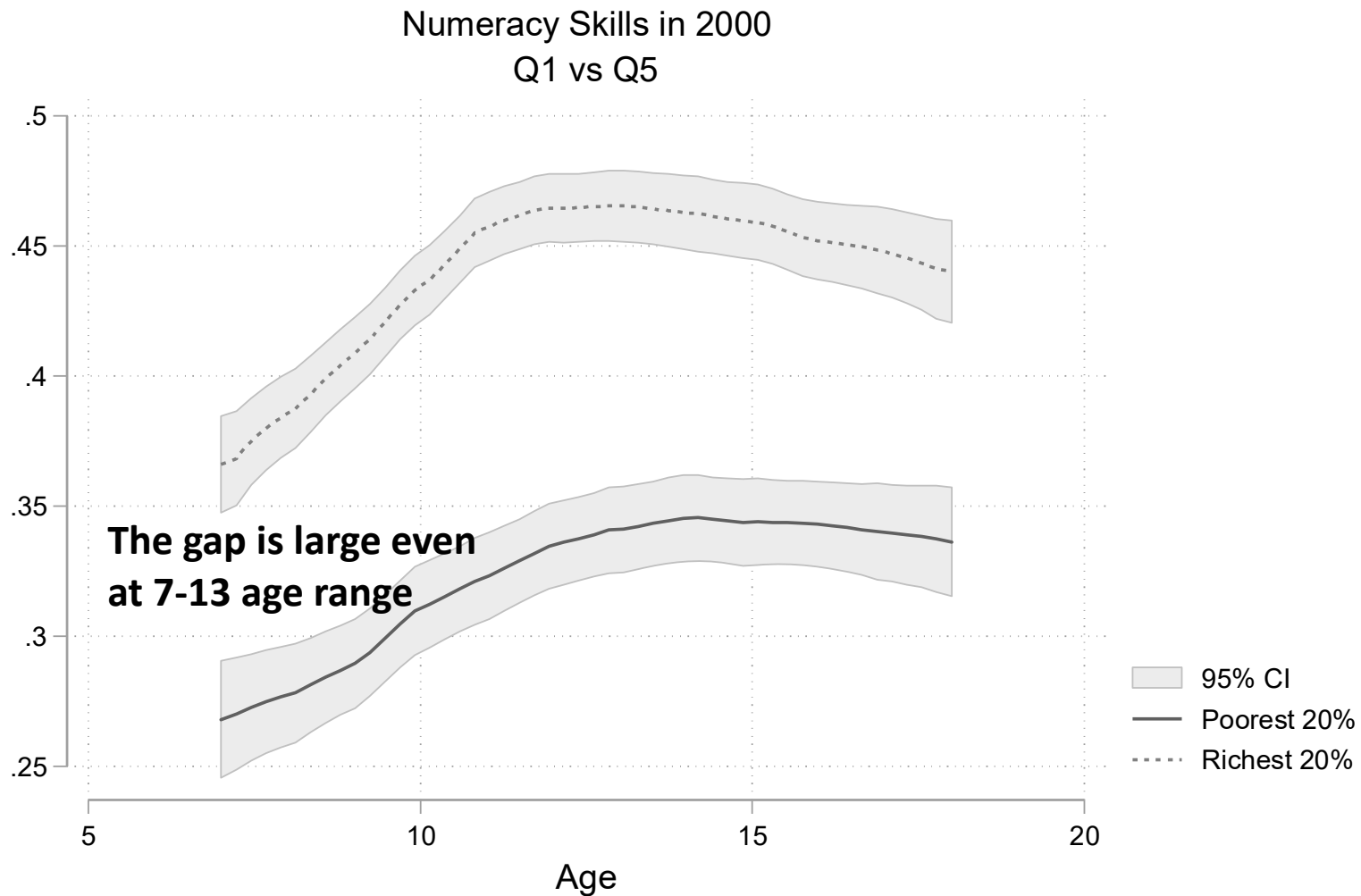
Learning gap between regions remained at 2 percentage points between 2000 and 2014



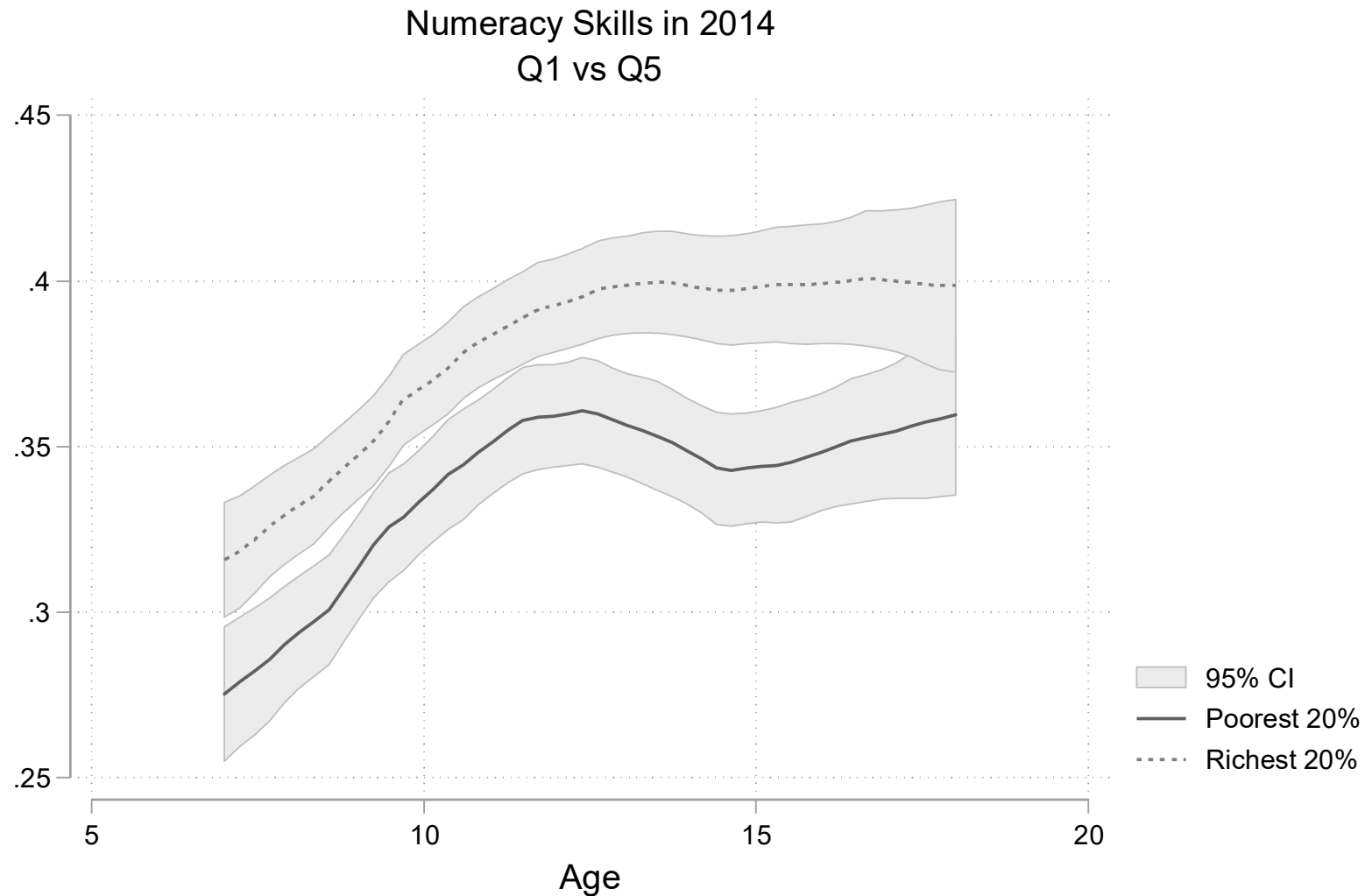
Although age where the gap exists seems to have shifted up



Numeracy gap between poor and rich was 12 pct pts in 2000



By 2014: learning gap declined to 4 pct pts. Mainly caused by a large decline in the learning of the richest 20%



Conclusions

Takeaway points

1. Learning profile starts low and remain relatively flat
2. Learning profile has deteriorated between 2000 and 2014. This is despite government's increased investments, new policies, decentralization
3. Some schooling inequalities in 2000. Virtually none by 2014.
4. Learning gap widens between boys and girls; narrows between rich and poor. But some worrying signs.

Next step is to understand further the causes of the changes in the learning levels and learning gap

Robustness checks do not reject our results

- Findings in line with literature
- Children enrolled in primary school in IFLS mostly score better than enrolled children in Afkar et al. (2018)

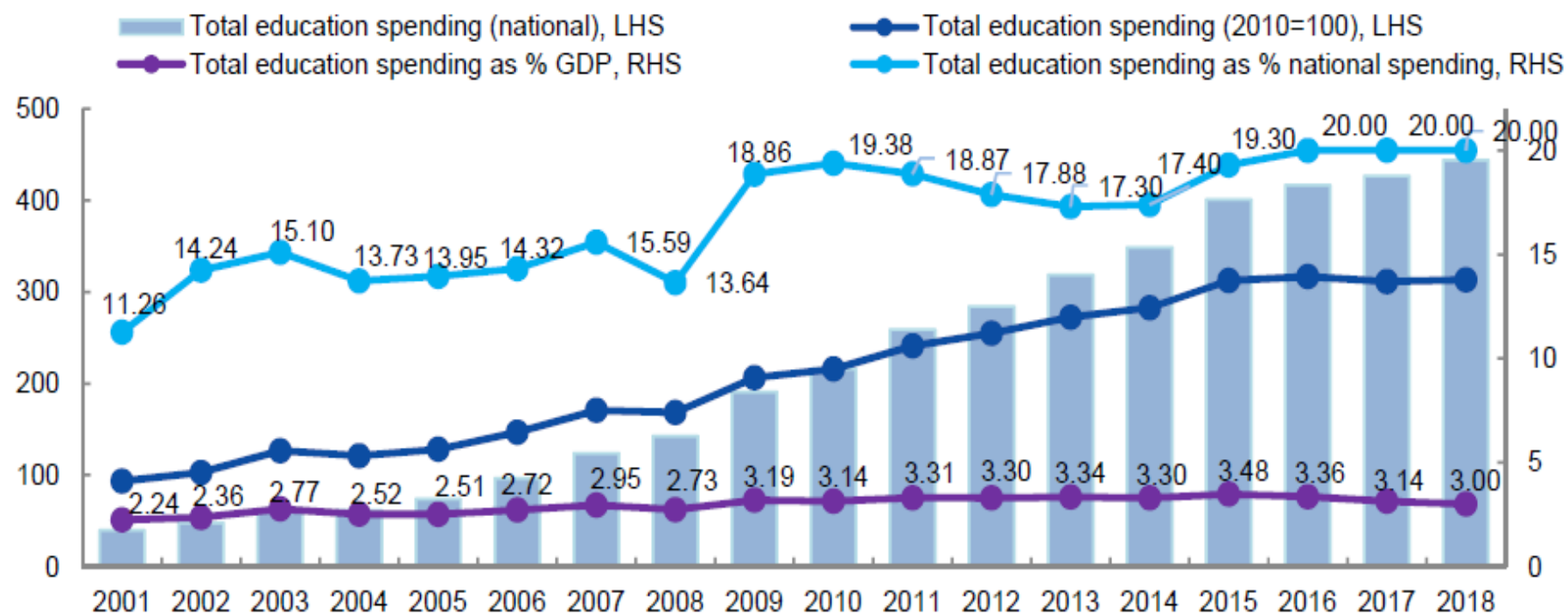
Thank You!

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MATHEMATICA
Policy Research

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



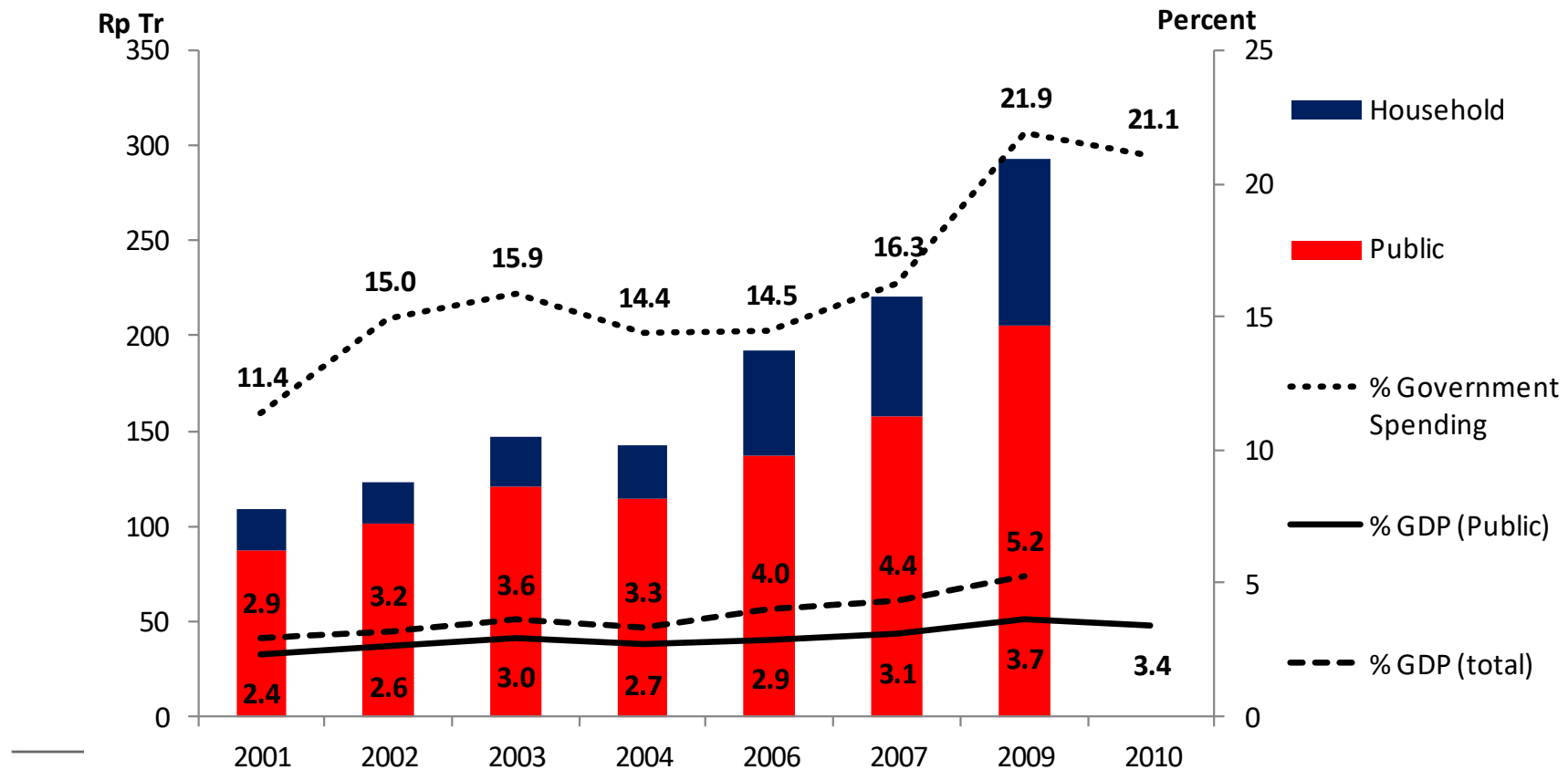
Source: World Bank COFIS database using MOF data and Presidential Regulation on budget details of respective years

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.

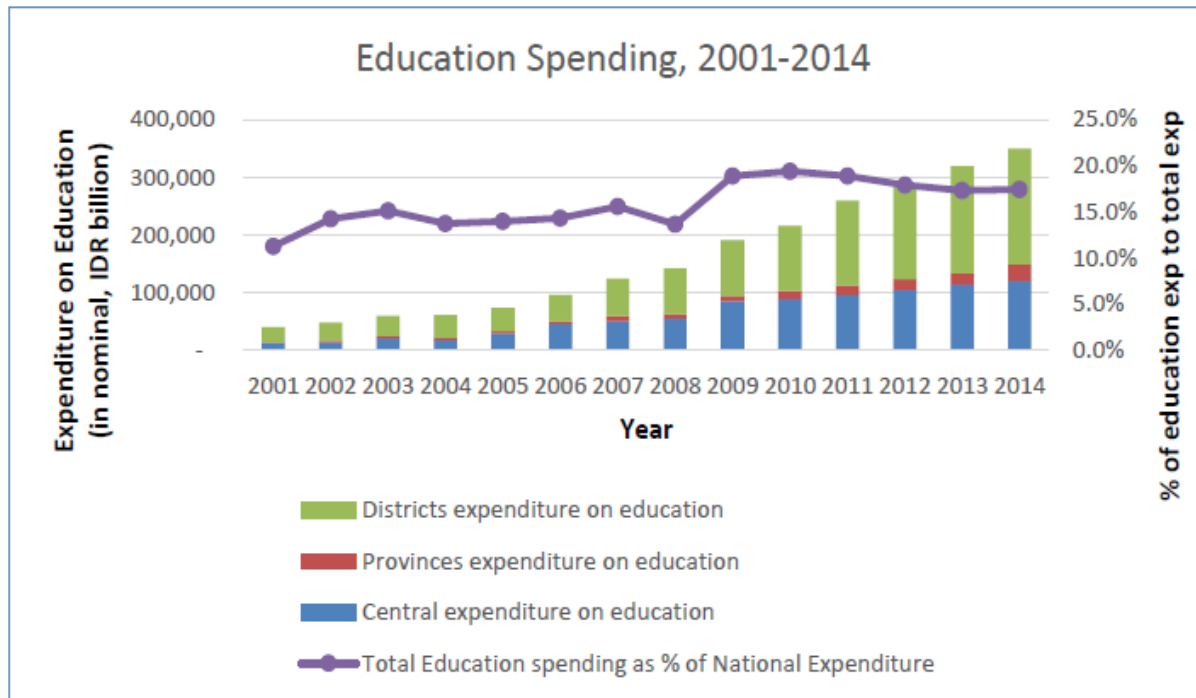
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Education spending in Indonesia, 2001 - 2010



Source: Al-Samarrai and Cerdan-Infantes (2013)

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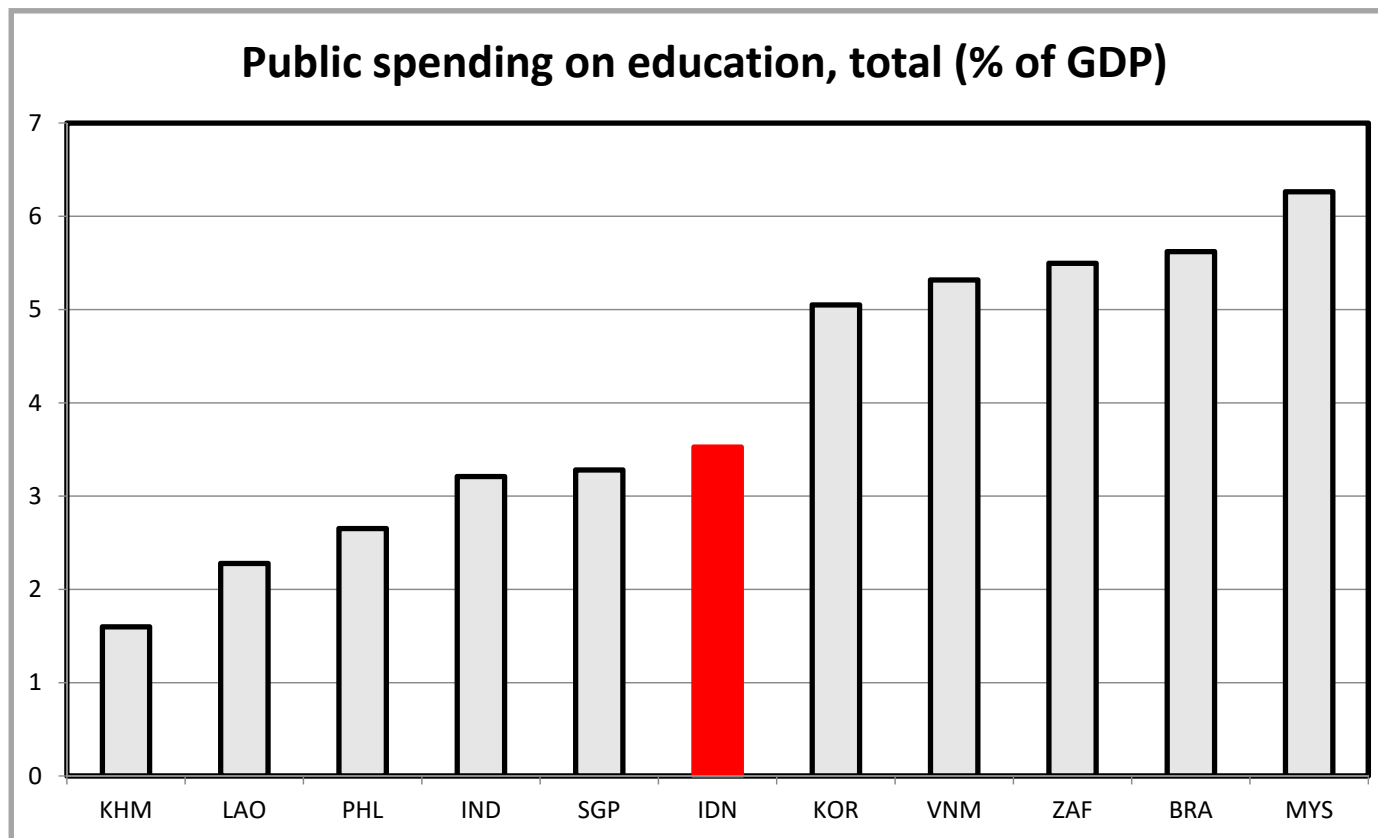


Source: Yusrina et al (2017)

- 60% spending done by subnational government, on primary and secondary education; 80% on teachers.
- Central government also transfers to schools directly; 16% used on teachers.
- Teachers have benefited the most from the increase between 2006 and 2009, 50% of the increase has gone to teachers.

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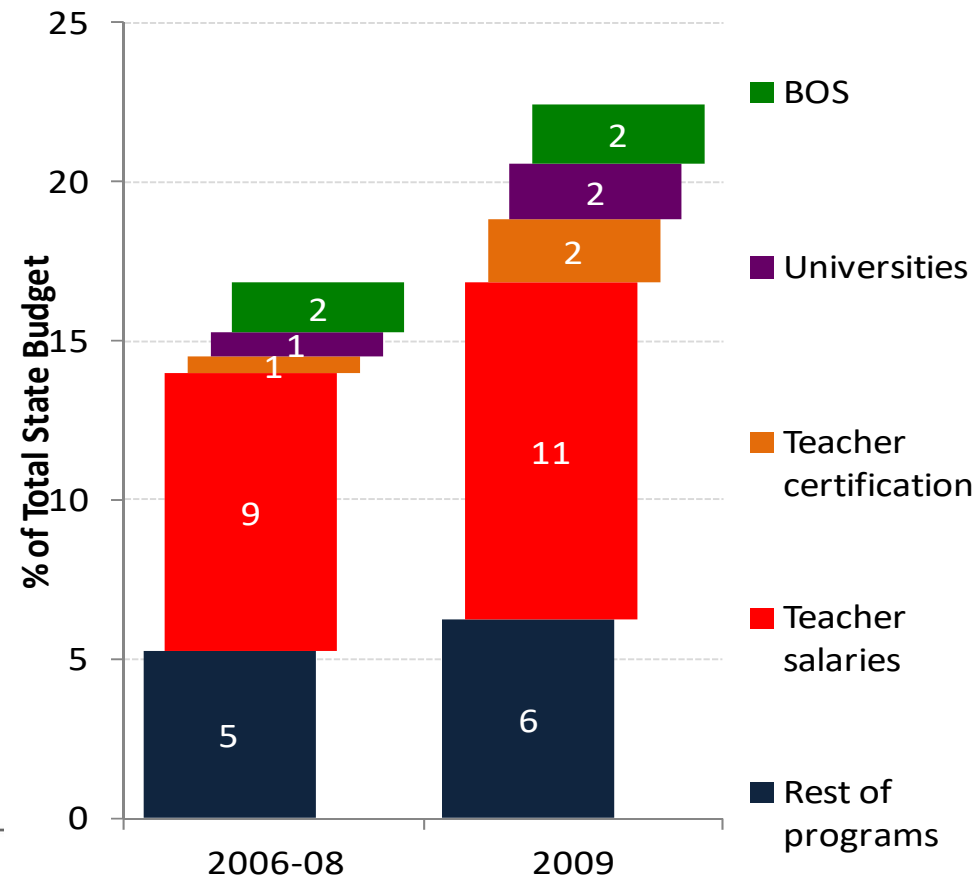
Public spending in an international context



Source: World Development Indicators. All 2009 data, except VNM & LAO (2008); KHM (2007).

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Mostly to basic education, to paying teachers (1)



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

Validity

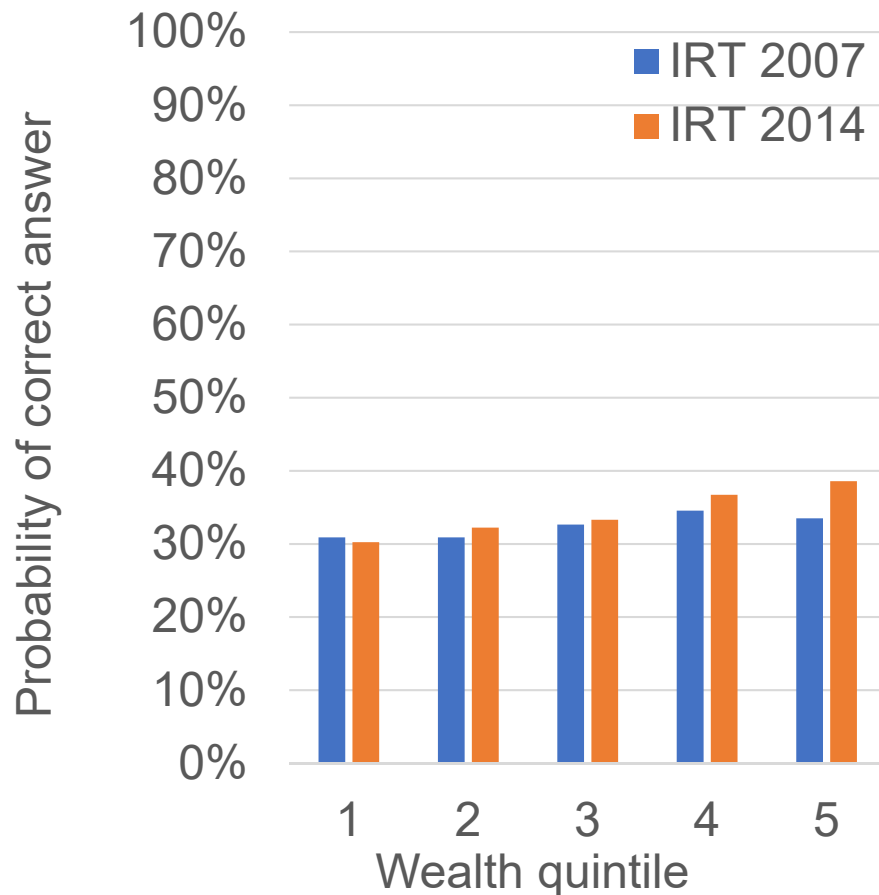
- Unidimensional based on factor analysis

Reliability

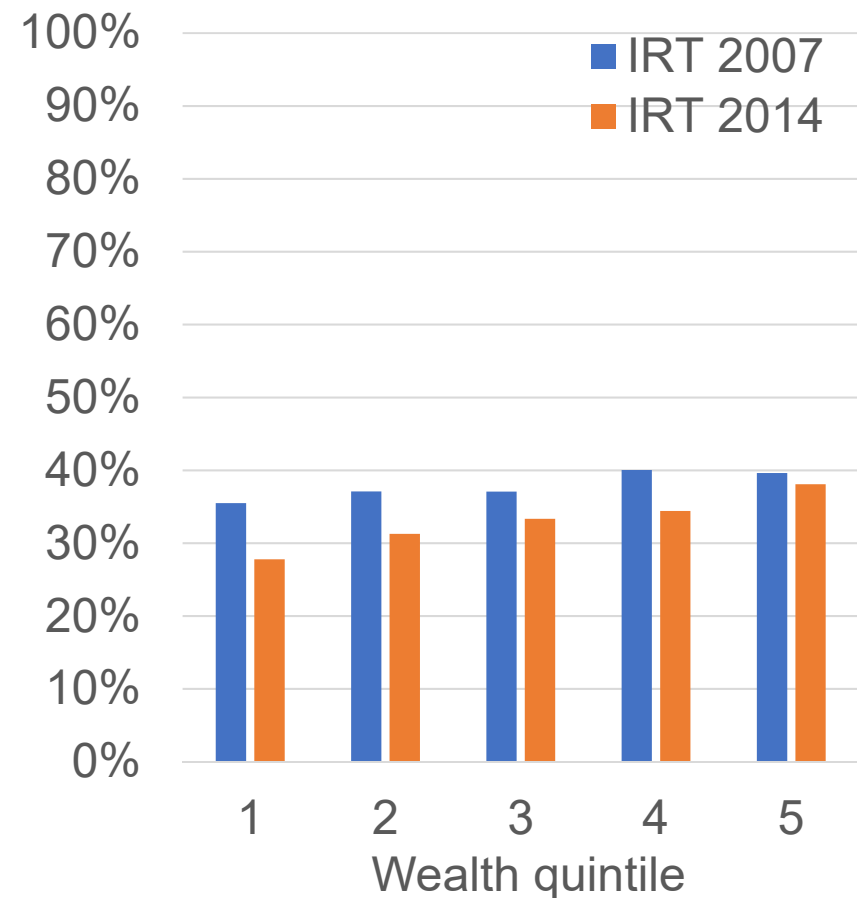
- Cronbach's alpha is slightly too low (0.67, at least 0.7 preferred)
 - Shows need for more items, as item-test correlations are between 0.42 and 0.63

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

(a) 7-9 year olds in 2007



(b) 10-12 year olds in 2007



$$267 + 112 - 189 =$$

$$1/3 - 1/6 =$$

267 + 112 - 189

Usia



1/3 - 1/6

Usia

10



18



28

