

Implementation and evaluation of education policy – recent experiences from Denmark

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Historical background: ALMP

- From mid 1990s
 - First evaluations of **ALMP** based on administrative registers
 - Heavy critique from policy makers
 - Gradual acknowledgement of the importance of evidence-based **employment policies**
- From 2005 onwards
 - first randomized-controlled trial (RCT)
 - "Hurtigt i gang I" showed positive effects
 - RCTs emphasized in the next conservative-liberal government plan
 - 10 scientific publications
 - an additional 10-12 large-scale RCTs
 - well-designed pilot projects lending themselves to quantitative evaluation

From employment to education

- From 2005 onwards
 - Gradual acknowledgement of the importance of evidence-based **education policies**
- From 2011 onwards
 - New Minister of Education, Youth and Children
 - Open towards research-based input
- Three major trials in the education sector so far
 - 2012/13: Teacher's Aides in the classroom (6th grade)
 - 2013/14: Increasing instruction time (4th grade)
 - 2013/14: READ –a Growth Mindset Approach (2nd grade)

The Effect of Teacher's Aides in the Classroom: Evidence from a Randomized Trial

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Motivation

- Increasing use of teacher's aides in many western countries
 - It varies across countries
 - In England, the number tripled from 1997 to 2011
- Compared to class size reductions, teacher's aides is a more flexible way of reducing the student-to-teacher ratio
 - Aides can be targeted at particular classes or courses and be used for a limited period of time
 - Schools may employ more qualified aides for few hours or less qualified aides for many hours

Motivation

- Very little causal evidence on the importance of teacher's aides
 - Leuven et al (2007) exploit a Dutch allocation rule for extra resources in schools with a high proportion of disadvantaged students (no effect)
 - Schanzenbach (2006) studies “Project STAR” which randomly assigned a full-time unskilled teacher aide (no effect)
- We contribute with causal evidence on
 - the impact of teacher's aides on test scores and behavior
 - the importance of time- and skill intensity

Intervention

- Two treatments that vary in time- and skill intensity
- Co-teacher with a teaching degree
 - At least 10.5 lessons per week/class, \$25,000/class
- Teaching assistant without a teaching degree (e.g. social educator, college student)
 - At least 14.5 lessons per week/class, \$25,000/class
- **RCT: 105 Danish public schools, 5,213 6th grade students**

TABLE: RESULTS READING AND MATH

	Reading	Math
Co-teacher w/degree	0.086*** (0.030)	0.058 (0.050)
Teaching assistant w/o degree	0.131*** (0.038)	0.043 (0.054)
Pre-test reading (spring 2011)	0.745*** (0.012)	
Pre-test math (spring 2010)		0.567*** (0.019)
Adj. R-squared	0.602	0.350
H0: Co-teacher=Teaching ass (p.value)	0.122	0.805
Control group mean	-0.005	0.062
No. students	5,018	4,996

Note: All models include a constant, municipality fixed effects, randomisation-strata fixed effects and the pre-test. *, **, *** significant at the 10%, 5% and 1% level.

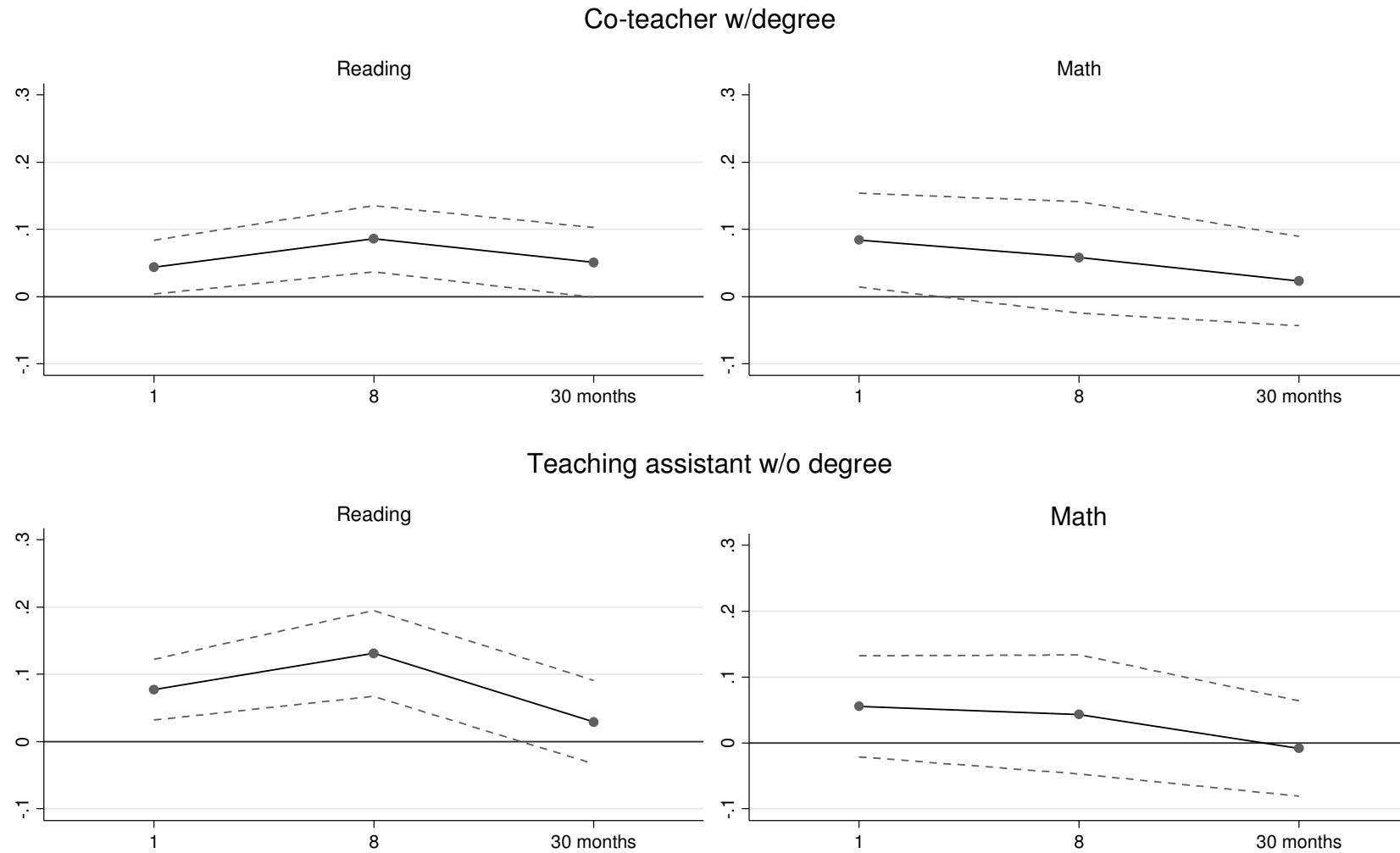
Compare effects across skill intensity

- Co-teacher with a degree
 - 8.6 %SD / 11.6 lessons per week
 - 0.74 %SD / lesson per week!
- Teaching assistant without a degree
 - 13.1 %SD / 20.7 lessons per week
 - 0.63 %SD / lesson per week!
- Higher time intensity more valuable than higher skills

Compare effects across skill intensity

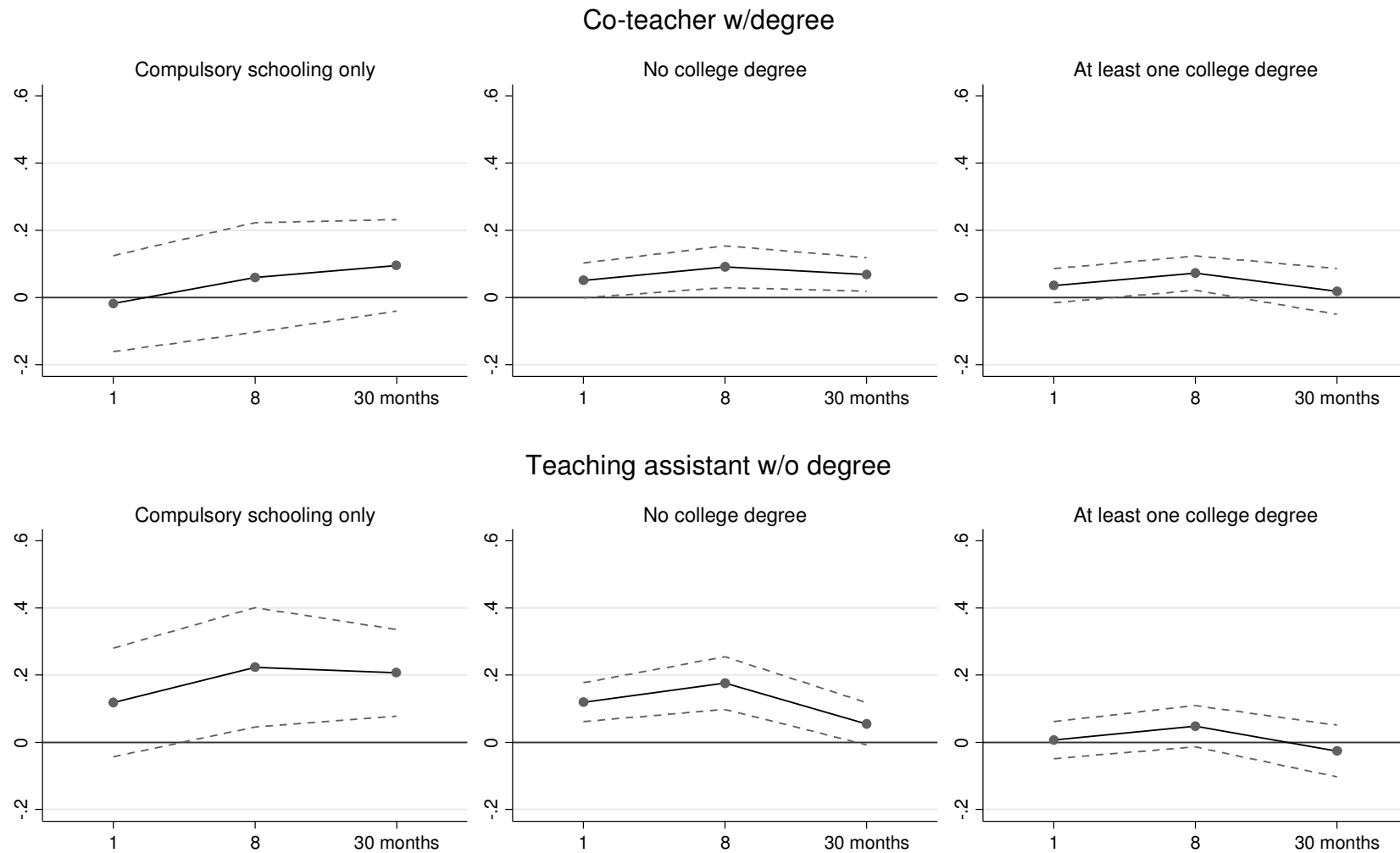
- Other explanations?
 - Different recruitment of co-teachers/teaching assistants?
 - Different selection of co-teachers/teaching assistants?

FIGURE: EFFECT ON READING AND MATH AT 1, 8 AND 30 MONTHS



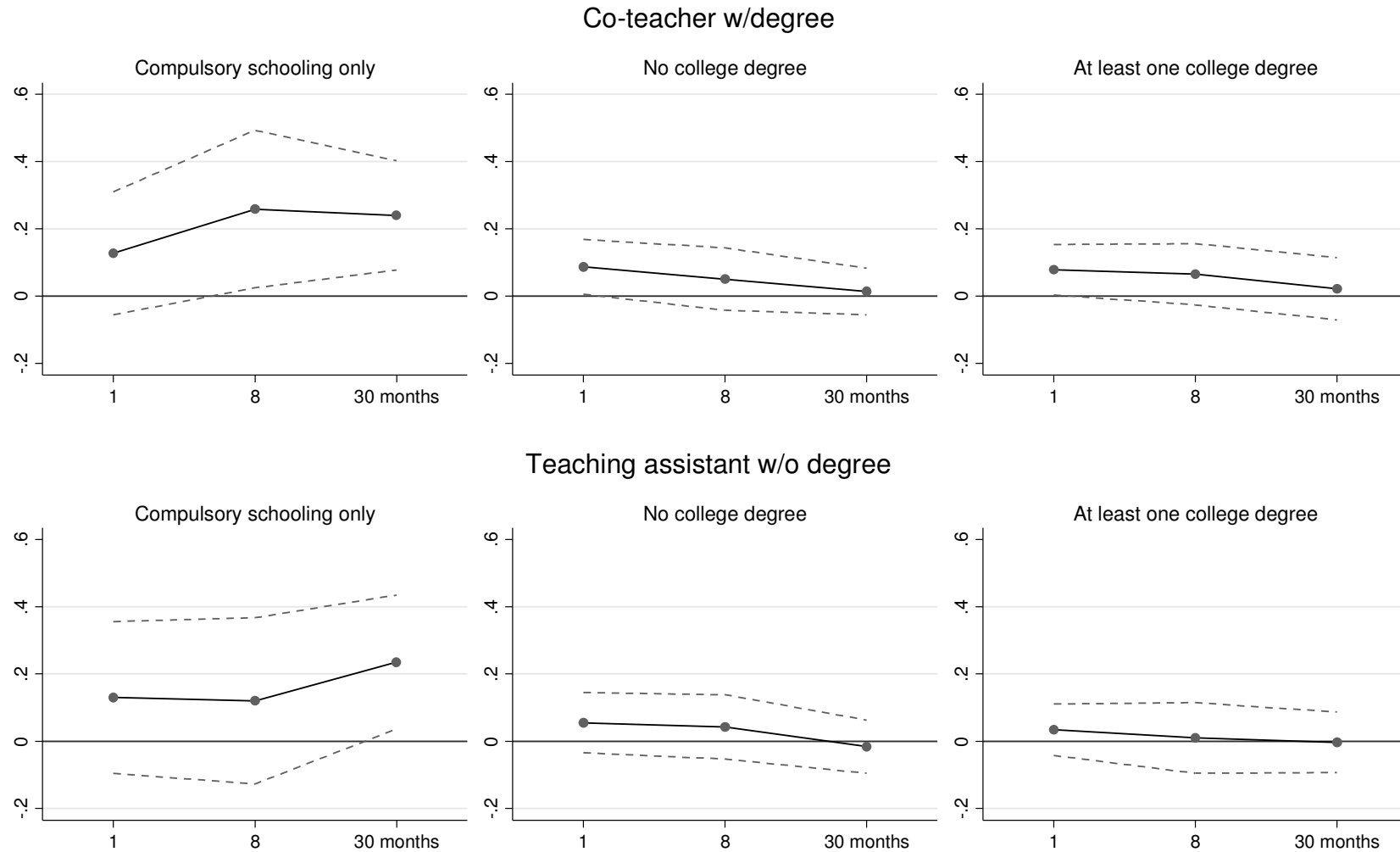
Note: overlaid with 90 percent confidence bands

FIGURE: EFFECT ON READING AT 1, 8 AND 30 MONTHS BY PARENTAL EDUCATION



Note: overlaid with 90 percent confidence bands

FIGURE: EFFECT ON MATH AT 1, 8 AND 30 MONTHS BY PARENTAL EDUCATION



Note: overlaid with 90 percent confidence bands

Conclusion

- Overall conclusion
 - significant and substantial average effects on reading scores
 - contradicts earlier studies that found no effects of teacher's aides.
- Heterogeneity
 - Interventions are more effective for children with low-educated parents
- Time intensity vs skill intensity
 - Cheaper high-dosage intervention is at least as effective as the expensive low-dosage intervention

Increasing Instruction Time in School
Does Increase Learning
(forthcoming in PNAS)

Simon Calmar Andersen

Maria Knoth Humlum

Anne Brink Nandrup

- [slides left out]

**Reading Intervention with a Growth Mindset
Approach Improves Children's Skills:**
Evidence from a Large-Scale Randomized Field Trial

Simon Calmar Andersen

Helena Skyt Nielsen

- [slides left out]

- Many useful policy lessons from these three randomized trials...
- “No experiment” is also a large-scale experiment