



West Virginia Universal Longitudinal Pre-K Evaluation

Following a WV Pre-K Cohort into 2nd Grade



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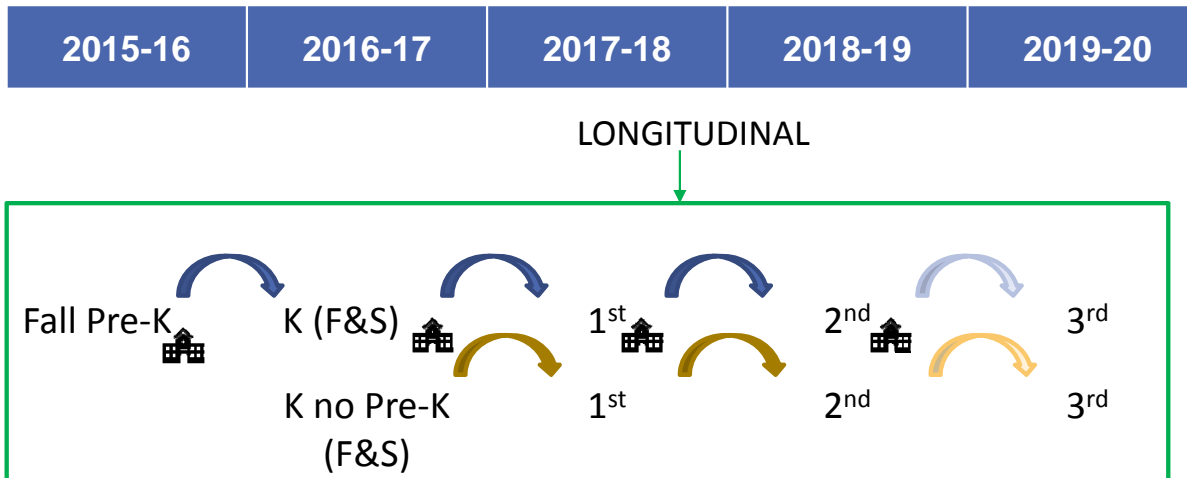
WV Universal Pre-K program

- Legislation in 2002 requiring expanded access to preschool available to all 4-year-olds by the 2012-2013.
- Program available in all 55 counties: Ranks 8th in Access (59%).
- ~75% of the programs in collaborative settings: private pre-Ks, child care centers, or Head Starts.
- Funding is on the State School Aid Funding Formula.
- Meets 9 of NIEER's quality benchmarks, w/ Lead and assistant teachers in public centers at salary parity with K-3 public school teachers.
- Since 2016-2017 school year, all programs must operate full day (1,500 minutes p/week; 48,000 annually); min. 4 days.
- State spending p/child (2019) = \$7,316 (all spending \$11,052)
- Ranks 8th in State spending (4th in total spending)

Research Questions

- Do children who attend the pre-kindergarten program show significantly greater progress on math, language, literacy, and executive function measures than children who do not attend the pre-kindergarten program through the end of second grade?
- What is the quality experienced by the longitudinal cohort through their P-2 progress?

5-year Design



Sample

- **Non-equivalent comparison (no randomization).**
- Treatment group = Children that attended pre-k in 2015-16 followed since pre-K entry.
- Control group = Children that did not attend pre-k in 2015-16 that were identified at K entry.
- 7 counties: Fayette, Greenbrier, Kanawha, Nicholas, Putnam, Roane and Wood.
 - PURPOSEFUL (lower enrollment rates ~60%)
- 48.2% female, 90.8% White, 52.2% Low Income.
- Control group (counterfactual): 54% Care at home, 36% faith-based, 11% private (45% response rate).
- Kindergarten N=971, First Grade N = 827, Second Grade N = 956.

Measures

Children:

- Language: PPVT IV
- Print Knowledge: WJ-III Letter-Word & Passage Comprehension
- Math: WJ-III Applied Problems
- Executive Functions: Dimensional Change Card Sort (memory, attention shifting), Peg Tapping (inhibitory control and attention) for K-1st grade

2nd grade only:

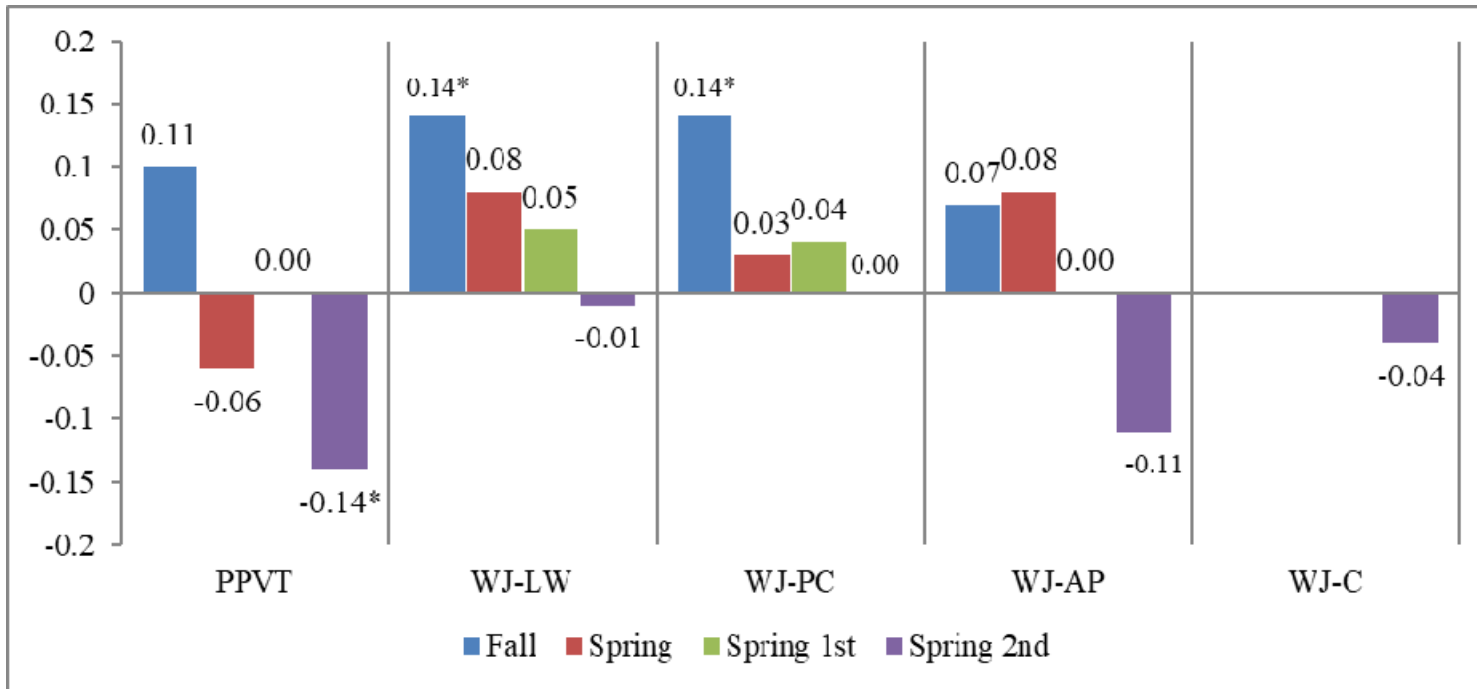
- WJ Calculation
 - MEFS – for executive functions
 - Socio-Emotional (NEW): Strengths and Difficulties Questionnaire (SDQ)
 - Emotional symptoms
 - Conduct problems
 - Hyperactivity/inattention
 - Peer relationship problems
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- Total difficulties
 - Prosocial behavior

Classroom Quality:

CLASS Pre-K, CLASS K-3

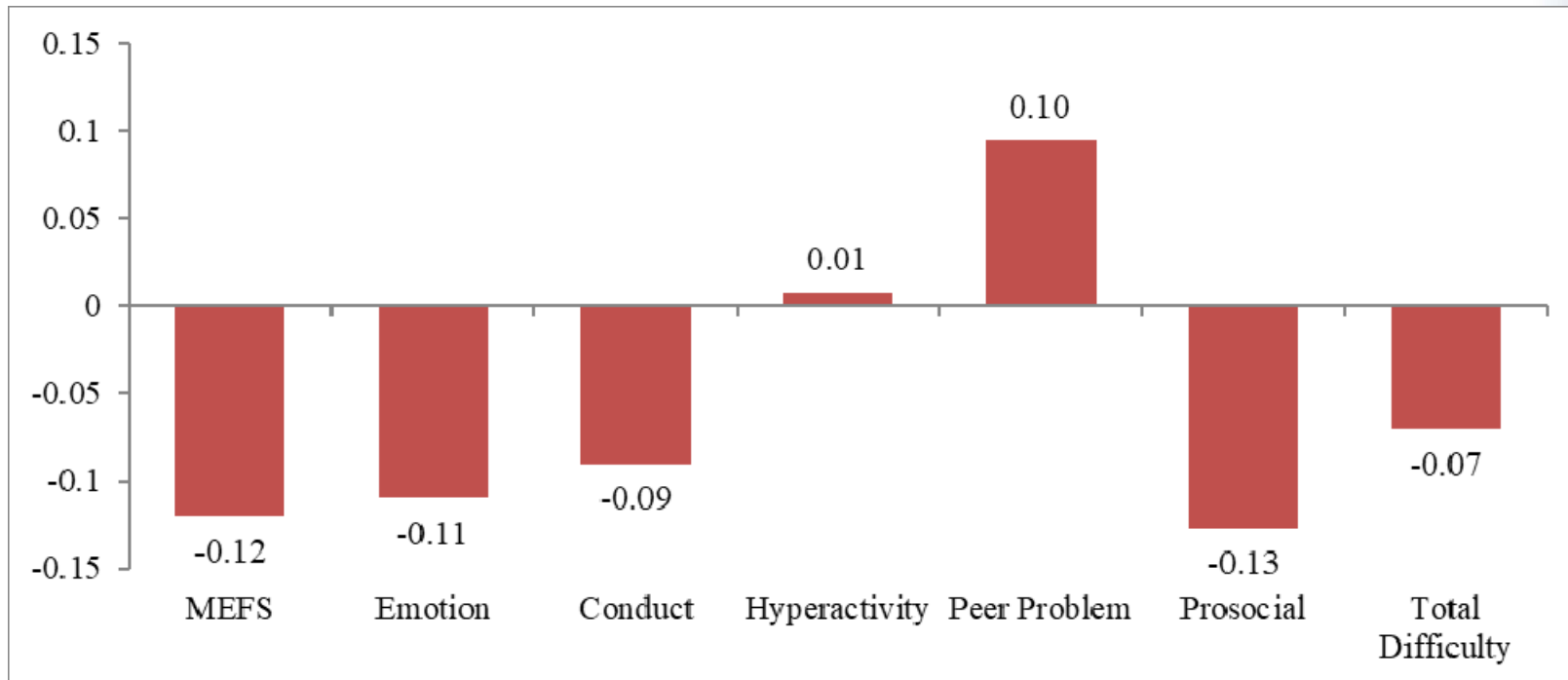
Results:

Vocabulary, Literacy, Language & Math

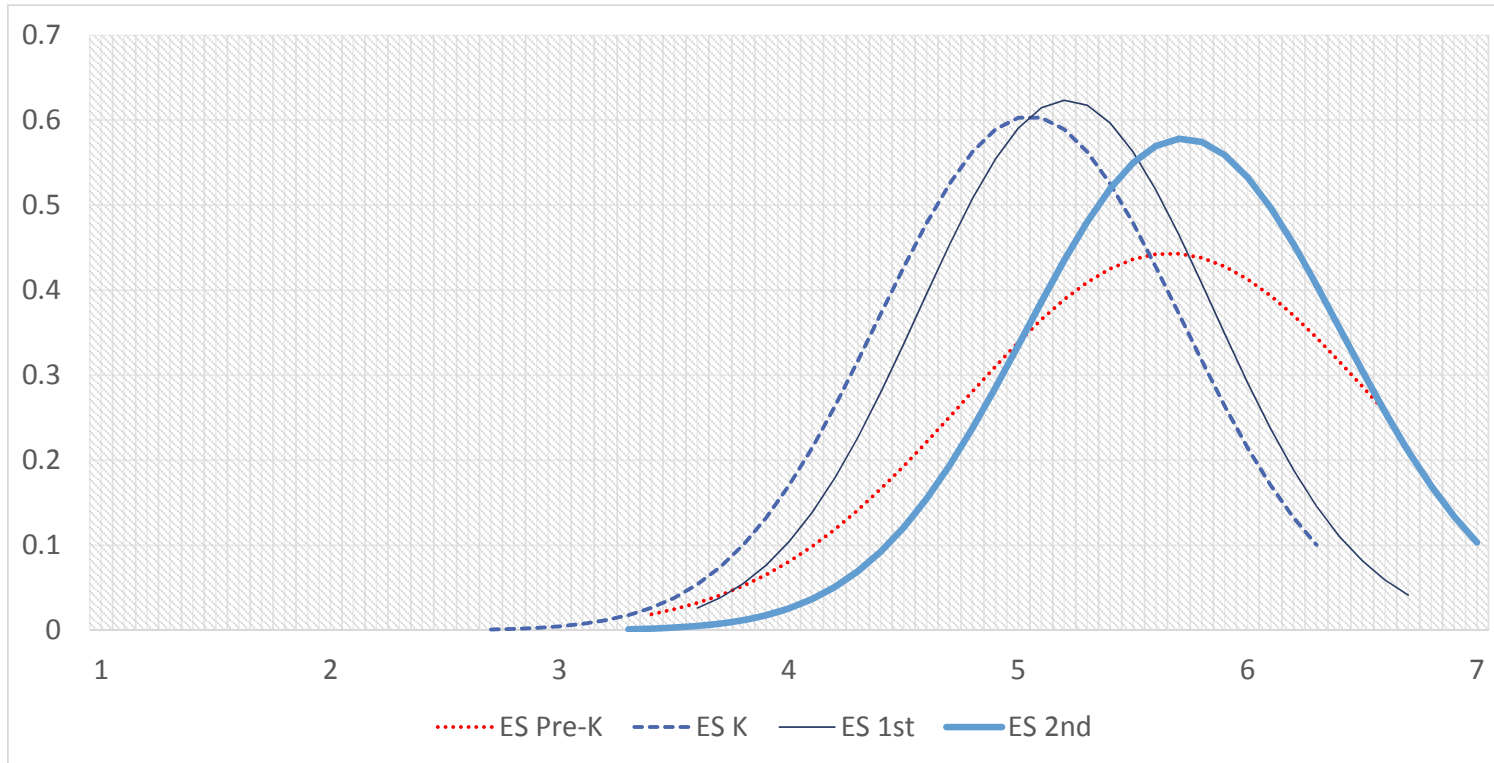


Effect sizes. Controls included are age, female, White, low income, IEP, retained, school, teacher education, teacher experience and certification, class size, inclusion ratios, and CLASS scores. Reference groups omitted from the estimation are Males, Non-White, middle to high income, Teacher Education less than Master's degree, Teacher experiences 0-5 years. Standardized scores used for PPVT, and WJ or WM. Errors are clustered by classroom.

Results: Exec. Functions & Social-Emotional

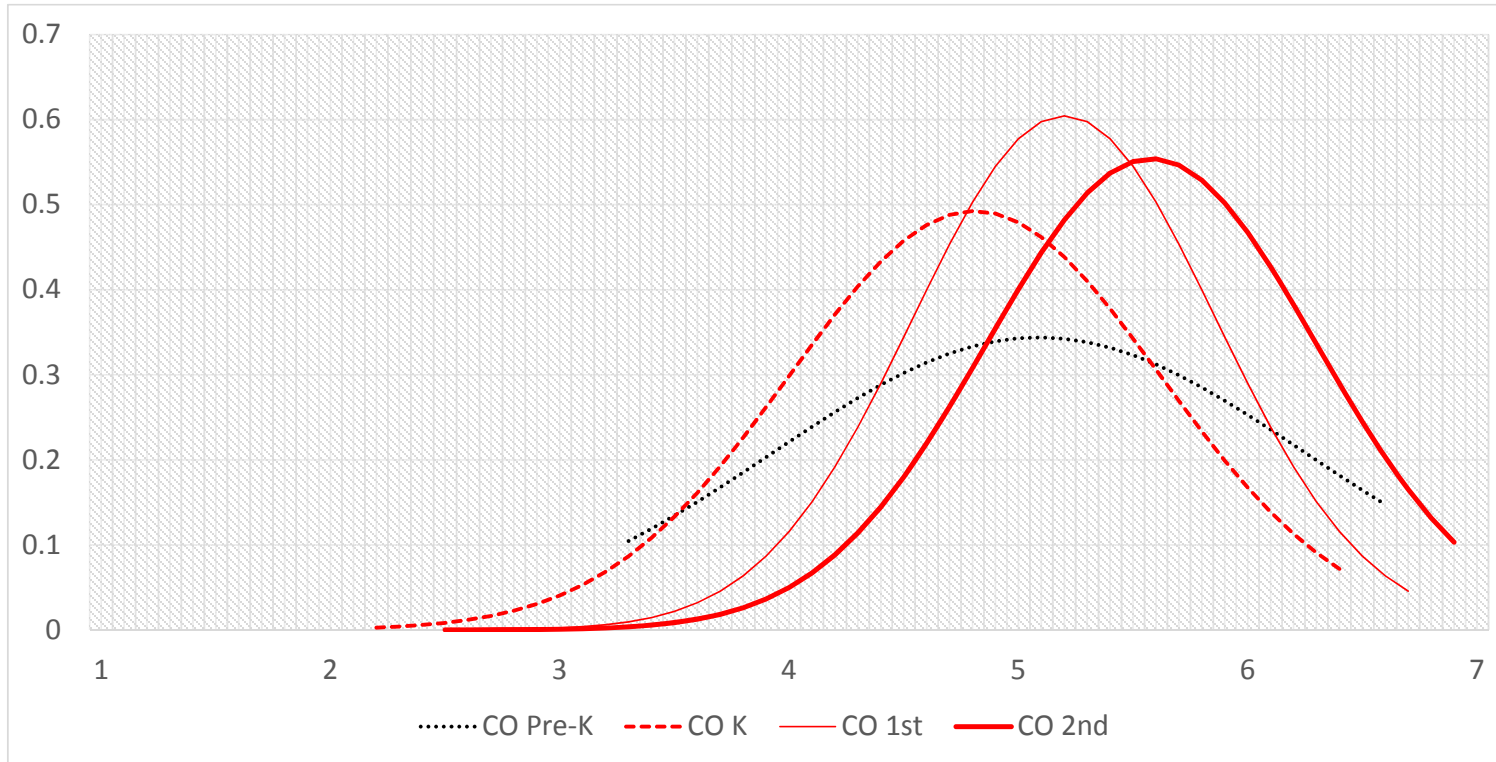


Quality Observed for the Longitudinal Cohort CLASS Emotional Support



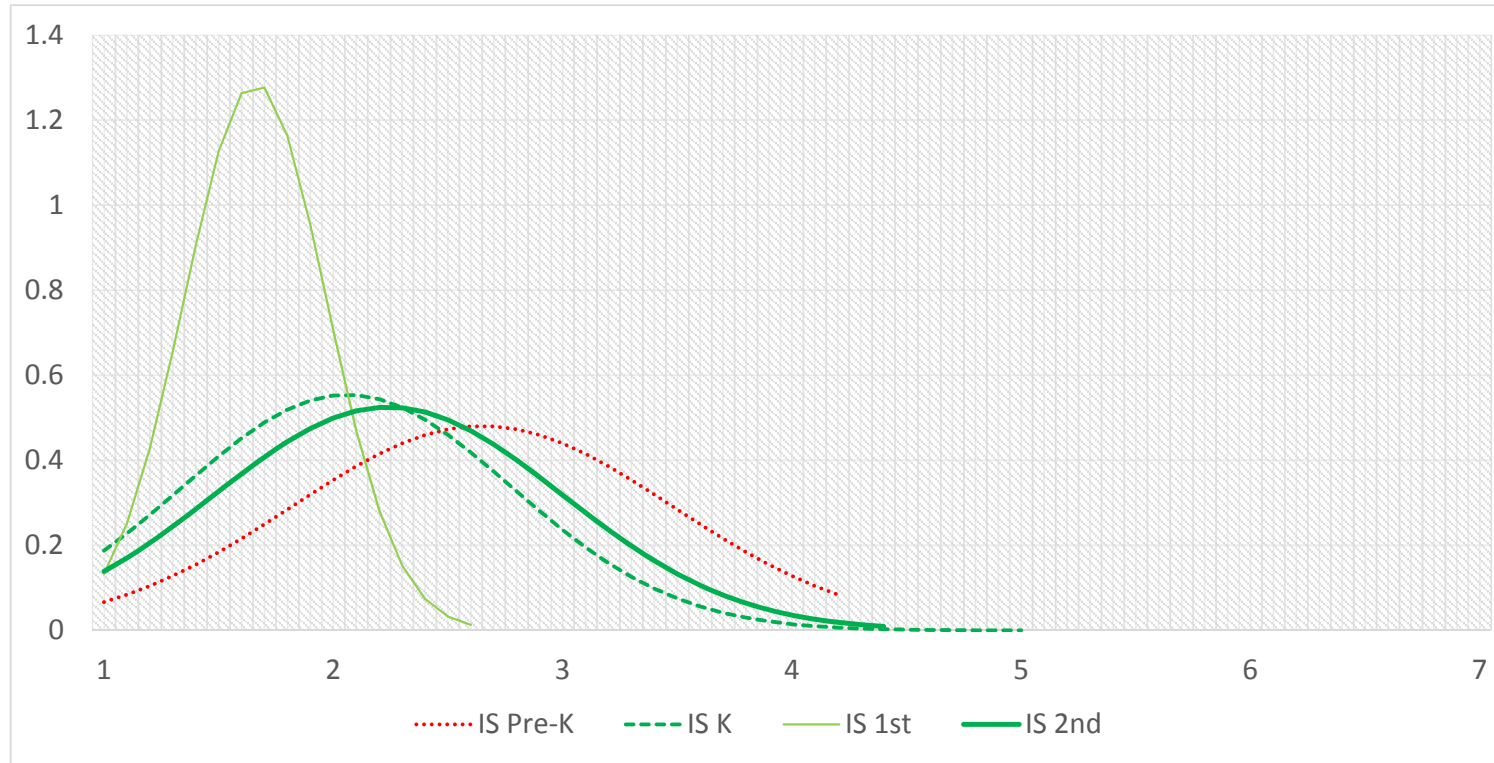
| | Pre-K 2016 (N=105) | | K 2017 (N=140) | | 1 st grade (N=142) | | 2 nd grade (N= 135) | |
|--------------------------|----------------------|--------|----------------|--------|-------------------------------|--------|--------------------------------|--------|
| Emotional Support | 5.66 ^{***a} | (0.90) | 5.05 | (0.66) | 5.21 ^{*b} | (0.64) | 5.72 ^{***c} | (0.69) |
| | (2.35-6.95) | | (2.75-6.25) | | (3.60-6.70) | | (3.35-7.00) | |

Quality Observed for the Longitudinal Cohort CLASS Classroom Organization



| | Pre-K 2016 (N=105) | | K 2017 (N=140) | | 1 st grade (N=142) | | 2 nd grade (N= 135) | |
|-------------------------------|--------------------|--------|----------------|--------|-------------------------------|--------|--------------------------------|--------|
| Classroom Organization | 5.09 ^{*a} | (1.16) | 4.81 | (0.81) | 5.20 ^{***b} | (0.66) | 5.58 ^{***c} | (0.72) |
| | (1.33-6.87) | | (2.27-6.40) | | (2.93-6.67) | | (2.53-6.87) | |

Quality Observed for the Longitudinal Cohort CLASS Instructional Support



| | Pre-K 2016 (N=105) | | K 2017 (N=140) | | 1 st grade (N=142) | | 2 nd grade (N= 135) | |
|------------------------------|----------------------|--------|----------------|--------|-------------------------------|--------|--------------------------------|--------|
| Instructional Support | 2.65 ^{***a} | (0.83) | 2.06 | (0.72) | 1.66 ^{***b} | (0.31) | 2.24 ^{***c} | (0.76) |
| | (1.13-5.33) | | (1.00-4.93) | | (1.07-3.53) | | (1.00-4.33) | |

Discussion

- + impacts of pre-k program at K entry in language & literacy.
- + effects were > for low income children on literacy & for girls on receptive vocabulary.
- Observe convergence in developmental trajectories by end of K.
- Sustained convergence through 2nd grade.
- Added socio-emotional measures in 2nd grade – some positive (not significant) impacts
- Strong consistency with other pre-K evaluations (Yoshikawa, et. al, 2013, Maxwell, et. al, 2001)
- Convergence likely due to the low quality observed in elementary together with teaching to the lowest performing children.
- Aligns with recent evidence pointing to the importance of K-3 quality for sustained effects (e.g. Reynolds & Temple, 2019; Unterman & Weiland, 2020; Yoshikawa, 2013).
- New study: Investigate whether districts with high pre-K coverage perform differently over time. Critical mass?



Thank you!

