

Pre-K: Myth and Reality

Grover (Russ) Whitehurst, Ph.D.

Senior Fellow

The Herman and George R. Brown Chair in Education Studies

The Brookings Institution

Washington, DC, USA

EARLY COGNITIVE SKILLS POWERFULLY PREDICT ADULT SUCCESS

Student/Teacher Achievement Ratio (STAR) experiment

- Conducted from 1985 to 1989 in Tennessee 11,571 children in grades K-3 at 79 schools
- Most children born in 1979-80 □ graduate high school in 1998
- Students and teachers randomized into classrooms within schools
- Followed into adulthood using tax and college attendance records

Chetty, Friedman, Hilger, Saez, Schanzenbach & Yagan (2011) HOW DOES YOUR KINDERGARTEN CLASSROOM AFFECT YOUR EARNINGS? EVIDENCE FROM PROJECT STAR , NBER Working Paper 16381, <http://www.nber.org/papers/w16381>

Kindergarten test question example

- Instructions:
 - I'll say a word to you. Listen for the *ending* sound.
 - You circle the picture that *starts* with the same sound.

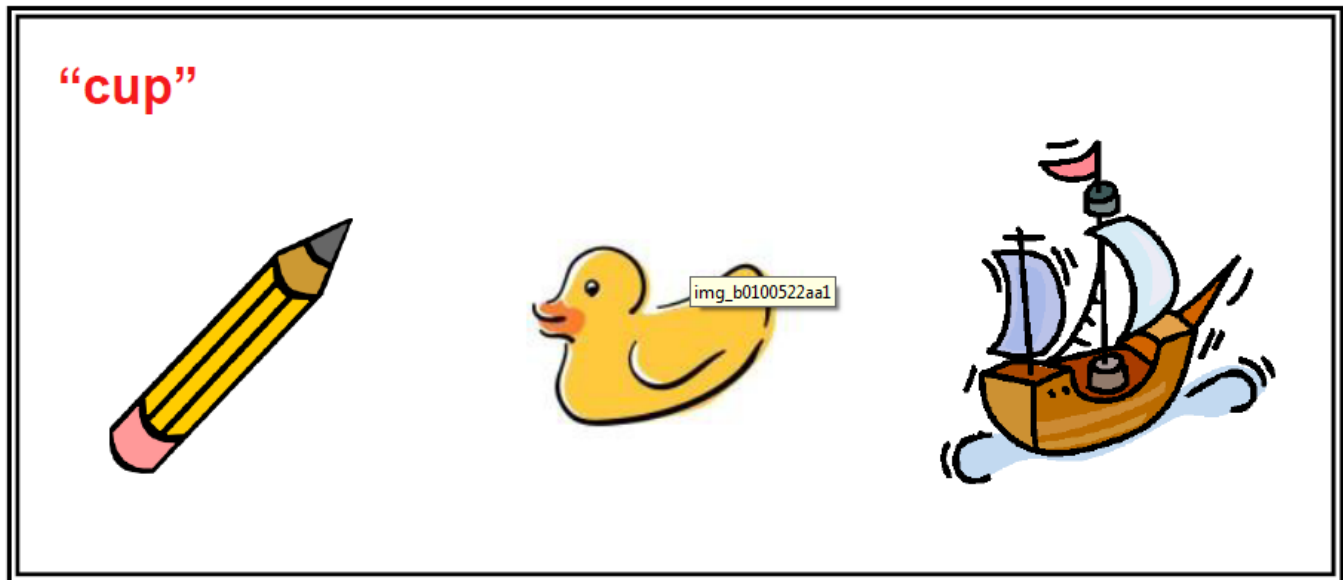
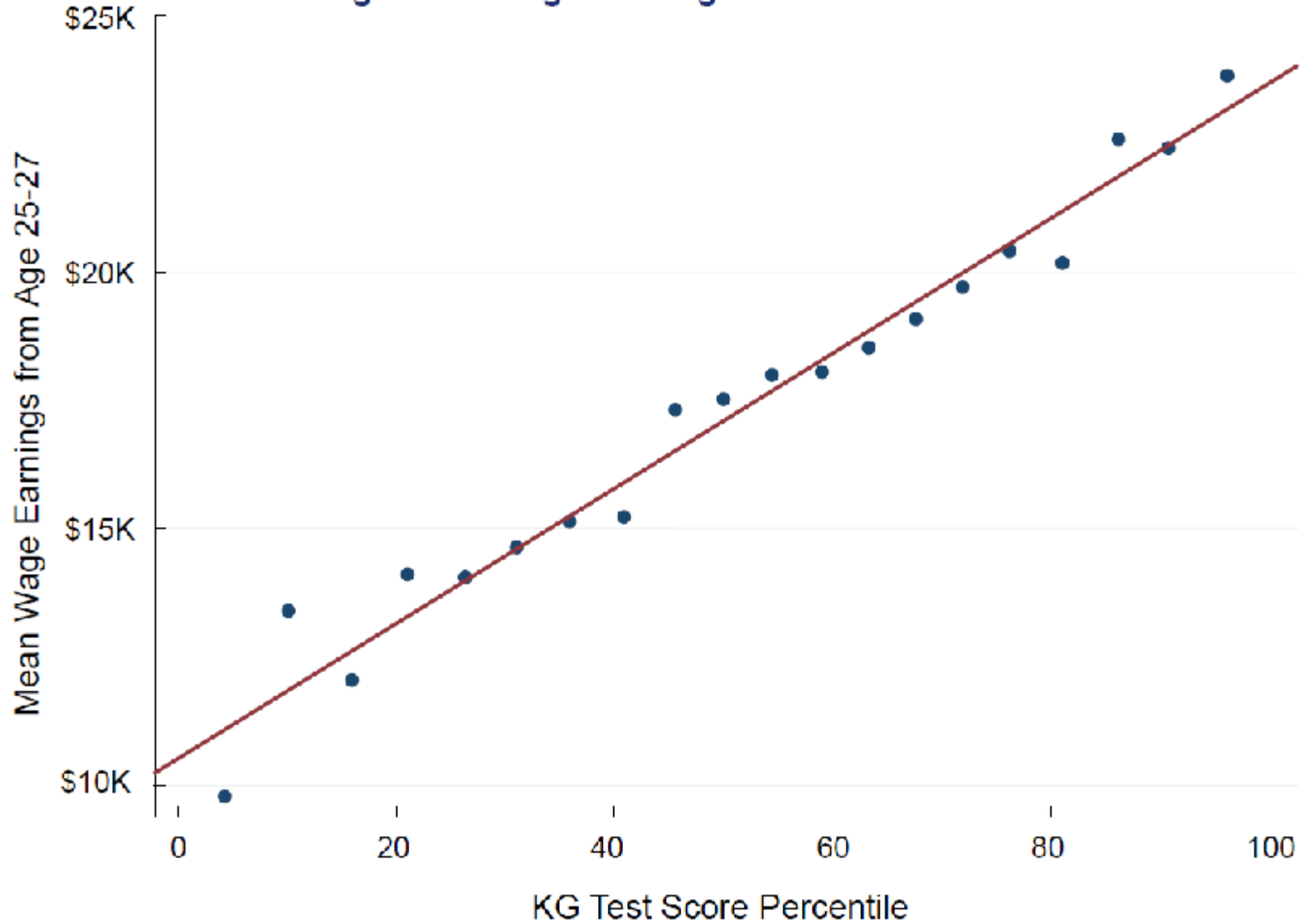


Figure 1a: Wage Earnings vs. KG Test Score



**MANY THINGS YOU MAY
THINK ABOUT PRESCHOOL
ARE MYTHS**

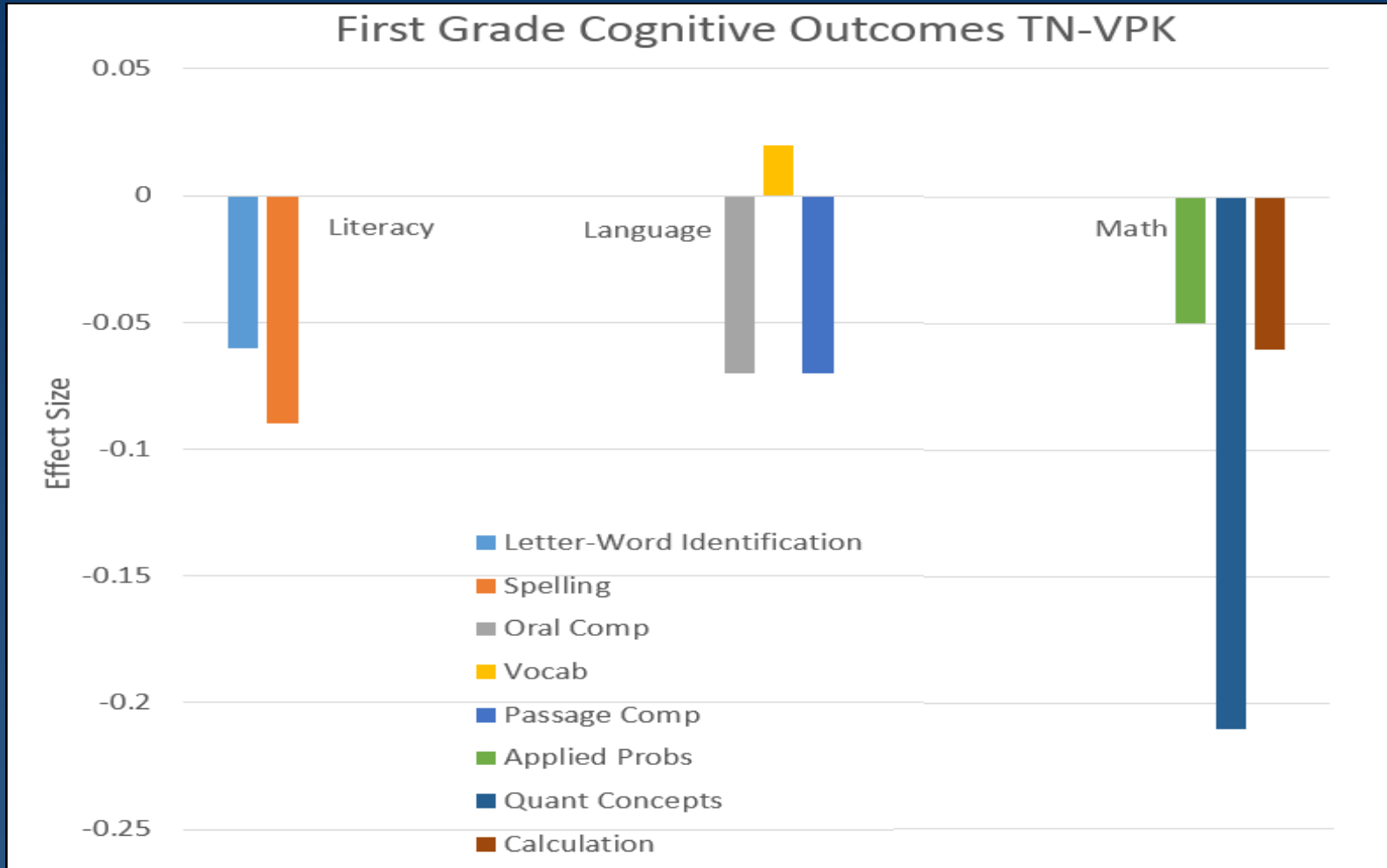
Myth

1. “We know from the economic literature that the pay-offs to investments in pre-k are high.”
 - a. Life outcomes: Only two methodologically credible studies that have tracked participants into adulthood: Abecedarian and Perry.
 - Both very small programs led by university teams
 - Both from 40-50 years ago
 - Both enrolled only black children from very low-income families
 - Both had a home-based parenting component
 - Both multi-year
 - Both very expensive
 - Very different findings (Abecedarian = cognitive impacts; Perry = social-emotional impacts)

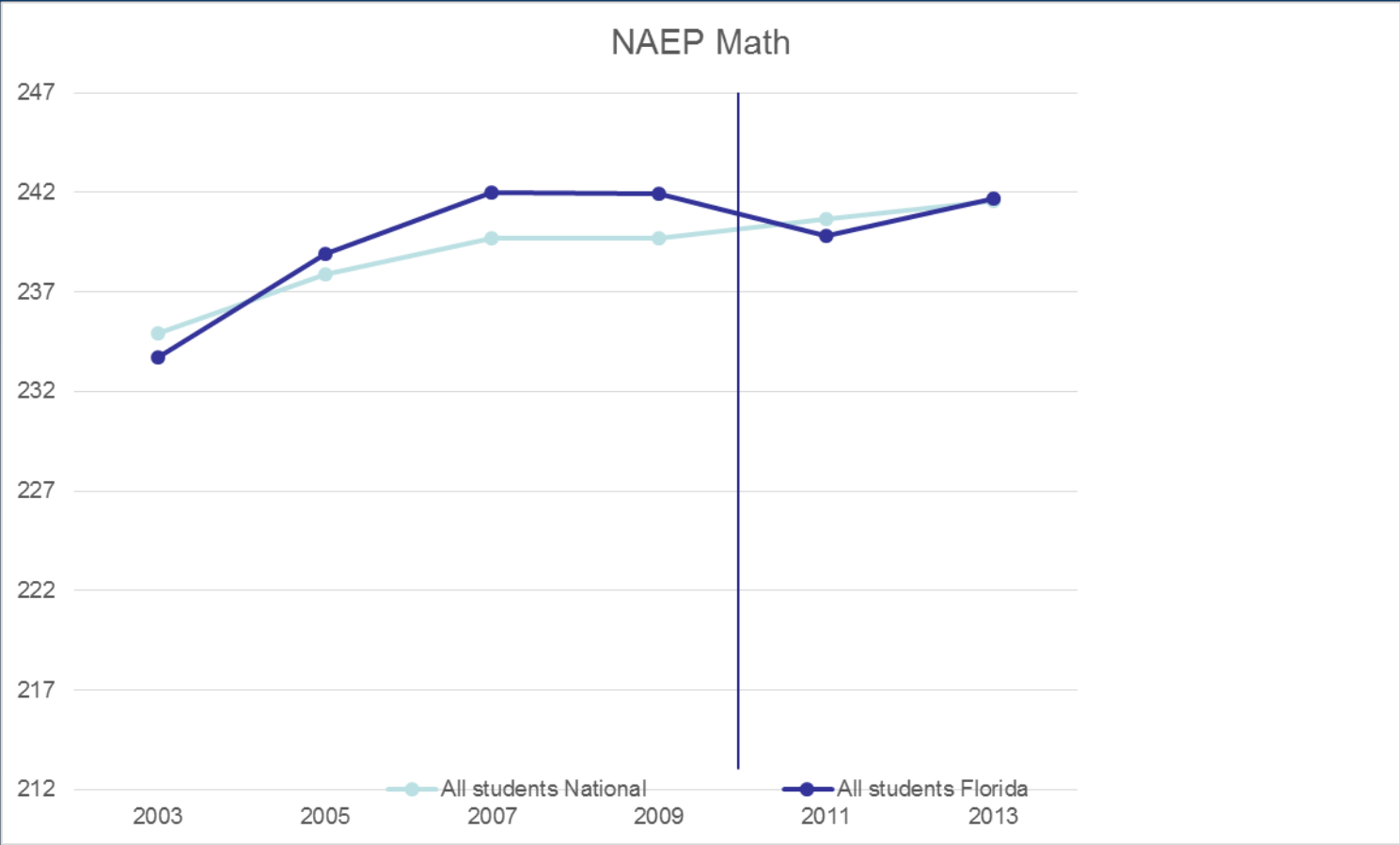
Myth of long-term payoffs

- b. School outcomes: A host of credible studies show very quick fade-out of the impact of pre-k attendance
 - Head Start Impact Study
Federal report: “by the end of 3rd grade there were very few impacts ... in any of the four domains of cognitive, social-emotional, health and parenting practices. The few impacts that were found did not show a clear pattern of favorable or unfavorable impacts for children.”
 - Tennessee Voluntary Pre-K Study (no impacts at the end of first grade)
 - Florida, Georgia, & Oklahoma statewide universal pre-k programs (no increase in state-level NAEP scores at 4th grade subsequent to the introduction of universal pre-k)

Tennessee Voluntary Pre-K

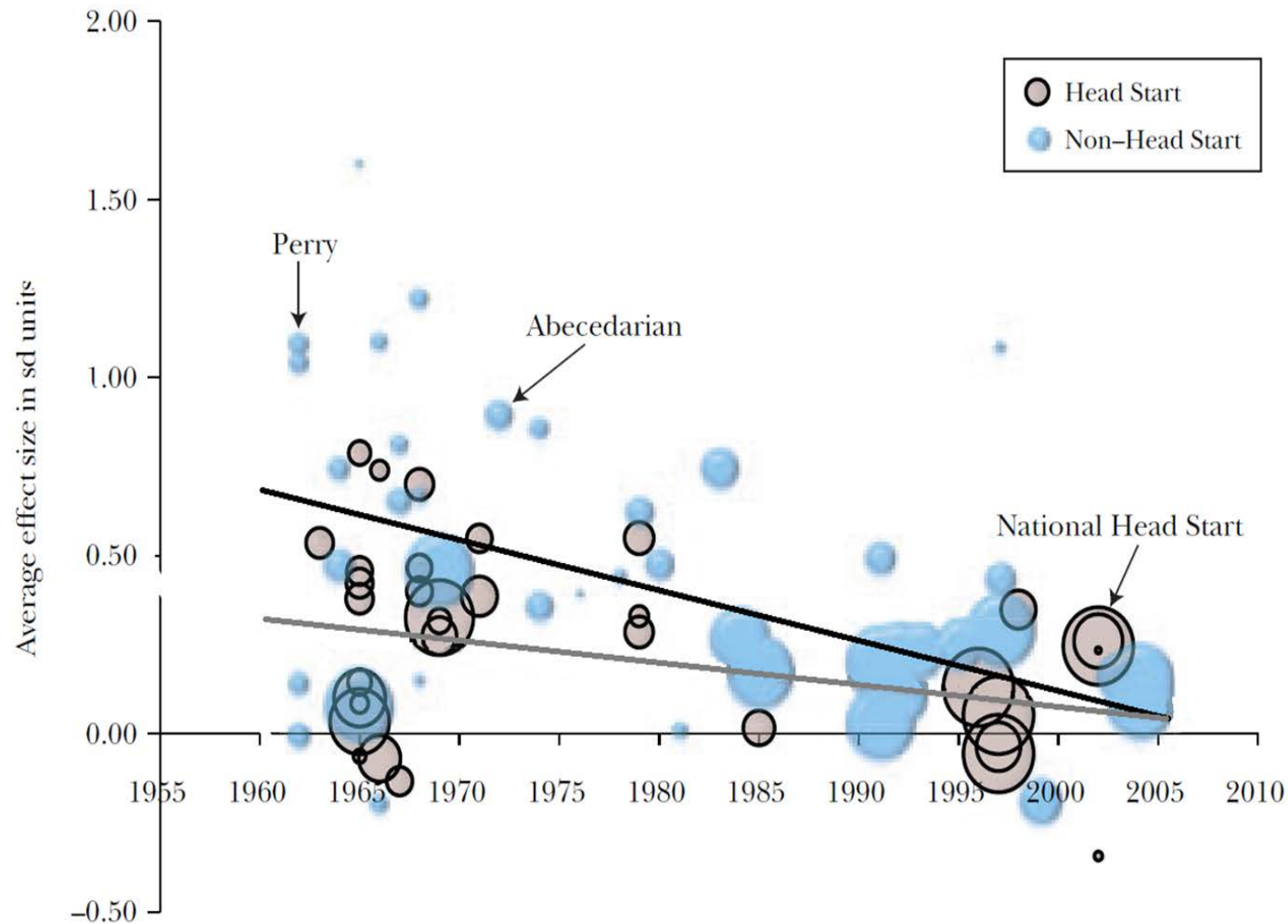


Florida NAEP Trends



Myth

2. Pre-k produces large effects at the end of the pre-k year



Myth

3. Children in pre-k learn more when teachers have college degrees and certification

Early et al. Child Dev. 2007 Mar-Apr;78(2):558-80. Teachers' education, classroom quality, and young children's academic skills: results from seven studies of preschool programs.

“The analyses do not provide convincing evidence of an association between teachers' education or major and either classroom quality or children's academic gains. Most of the analyses yielded null findings. Although there were some statistically significant associations, no clear pattern emerged”

Myth

Class size is a very important determinant of pre-k quality

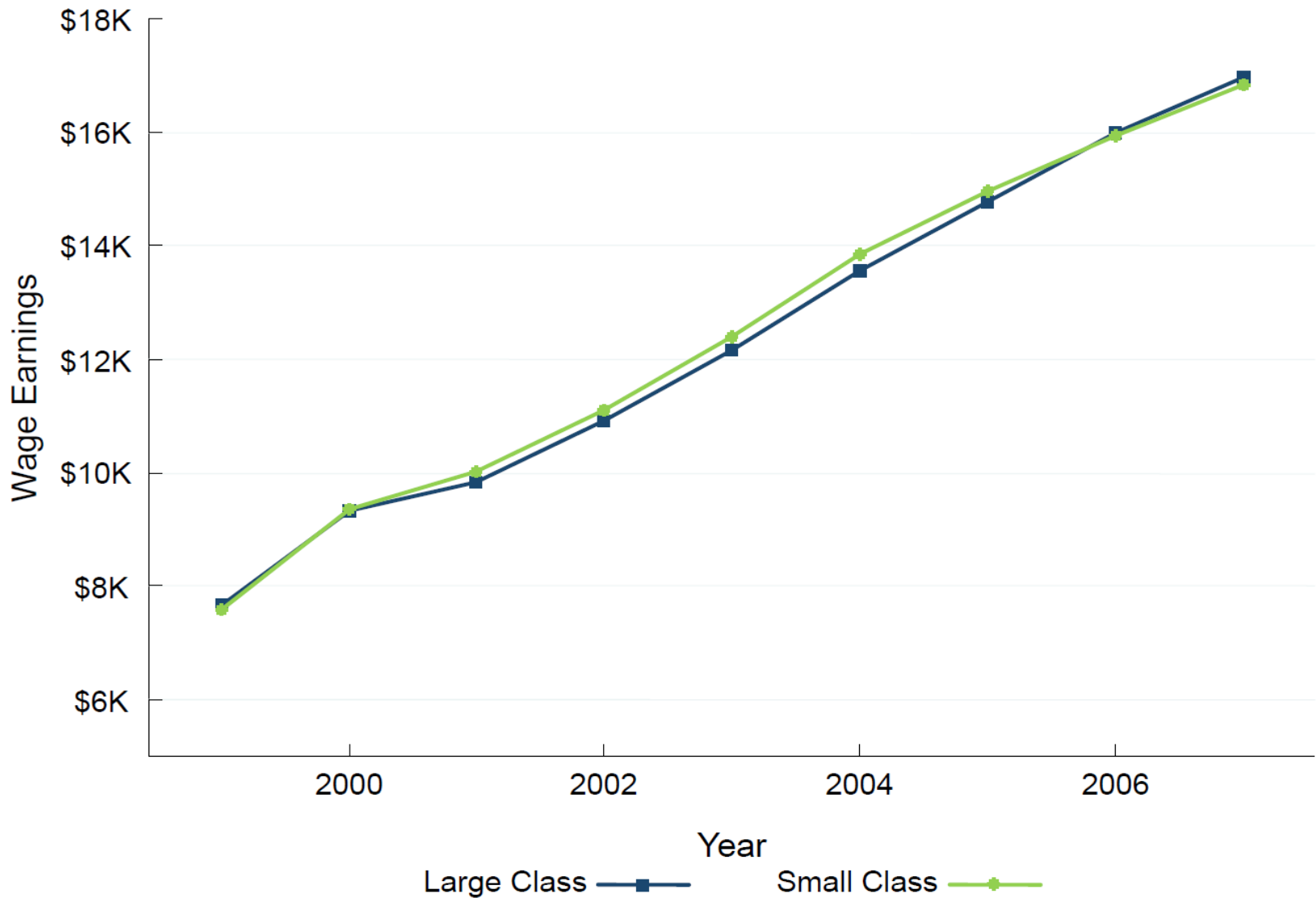
Associations of Program and Teacher Factors with Observed Quality

	CLASS		ECERS-R		Activity Settings		
	Emotional	Instructional	Interactions	Provisions	Whole Group	Centers	Routine
Ratio	.03	.06	.01	.09	.04	-.06	.04
Experience	.06	-.03	-.08	.06	-.02	.09	-.09
Depression	-.15*	-.11	-.11	.04	-.07	.11	.00
Attitude	-.14*	-.10	-.16*	-.07	.07	-.16*	.06
Wages	.06	.11	-.02	-.20**	.32***	-.18*	-.07

Note: CLASS = Classroom Assessment Scoring System; ECERS-R = Early Childhood Environmental Rating Scale-Revised.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Figure 2c: Effect of Class Size on Wage Earnings by Year



REALITIES

BROOKINGS

QUALITY. INDEPENDENCE. IMPACT.

Facts and likely facts

1. Pre-k provides the greatest benefits to children from disadvantaged backgrounds, children with the lowest test scores, and children from non-English speaking homes
2. A curriculum that enhances language and pre-reading skills is important for the children who are most likely to benefit for pre-k
3. Programs that engage parents and create more opportunities for learning at home enhance center-based programs

Effects of preschool curricula in kindergarten

Outcome/Measures	Curricula																
	BB	CC (V)	CC (UNC)	CC with Ldrs.	Curiosity Corner	DD	LB	ELLM		LFC	DLM with OC		LE	Pre-K Math	PA	PC	RSL
Reading																	
TERA	-0.07	0.10	-0.04	-0.54	0.43 *	-0.05	-0.13	0.30		0.05	0.76 **	-0.11	0.31	0.29	-0.03	0.01	
WJ Letter Word Identification	0.09	0.38	0.00	-0.27	0.43 *	-0.09	-0.18	0.00		0.02	0.50 **	0.08	0.22	0.03	0.16	-0.12	
WJ Spelling	0.06	0.25	-0.05	-0.08	0.20	-0.12	-0.06	0.04		0.11	0.22	0.06	0.03	0.14	0.00	0.04	
Phonological awareness																	
CTOPP	0.01	0.06	0.06	-0.10	0.25	-0.09	-0.13	0.08		0.03	0.38 *	0.08	-0.11	-0.17	-0.12	-0.02	
Language																	
PPVT	0.07	0.12	0.15	-0.30	0.14	0.18	0.00	0.34 *	-0.09	0.48 **	0.16	0.11	0.10	0.10	0.10	-0.02	
TOLD	0.16	0.11	-0.17	-0.06	0.15	0.06	-0.12	0.44 **	-0.07	0.46 **	0.10	0.08	0.32	0.01	-0.03		
Mathematics																	
WJ Applied Problems	0.13	0.17	0.09	-0.33	0.26	-0.02	-0.13	0.26		0.11	0.48 ***	-0.02	0.13	0.27	0.08	0.00	
CMA-A Mathematics Composite	0.07	0.05	0.14	-0.19	-0.05	-0.16	-0.07	-0.05		0.00	0.13	-0.21	0.13	0.22	-0.06	-0.10	
Shape Composite	0.15	0.00	-0.01	-0.10	0.32	-0.12	-0.06	0.03		0.06	0.09	-0.14	0.41 ***	0.24	0.12	0.03	
Behavior																	
SSRS Social Skills	0.03	0.35	-0.12	0.17	0.32	-0.05	0.24	0.27		-0.07	-0.18	-0.37	0.06	-0.44 *	0.12	-0.03	
SSRS Problem Behavior	0.24	0.05	0.08	0.02	-0.08	0.46	0.06	0.23		-0.05	0.01	0.22	-0.01	0.49 *	0.07	0.07	
LBS	0.30	0.08	-0.20	-0.11	0.11	-0.32	-0.10	0.04		0.10	-0.13	-0.38 *	0.01	-0.42 *	-0.02	-0.01	

* $p < .05$; ** $p < .01$; *** $p < .001$

BB: *Bright Beginnings*; CC (V): *Creative Curriculum* (Vanderbilt University); CC (UNC): *Creative Curriculum* (University of North Carolina at Charlotte) CC with Ldrs: *Creative Curriculum with Ladders to Literacy*; DD: *Doors to Discovery*; LB: *Let's Begin with the Letter People*; ELLM: *Early Literacy and Learning Model*; LFC: *Language-Focused Curriculum*; DLM with OC: *DLM Early Childhood Express supplemented with Open Court Reading Pre-K*; LE: *Literacy Express*; Pre-K Math: *Pre-K Mathematics supplemented with DLM Early Childhood Express Math software*; PA: *Project Approach*; PC: *Project Construct*; RSL: *Ready, Set, Leap!*

Facts and likely facts

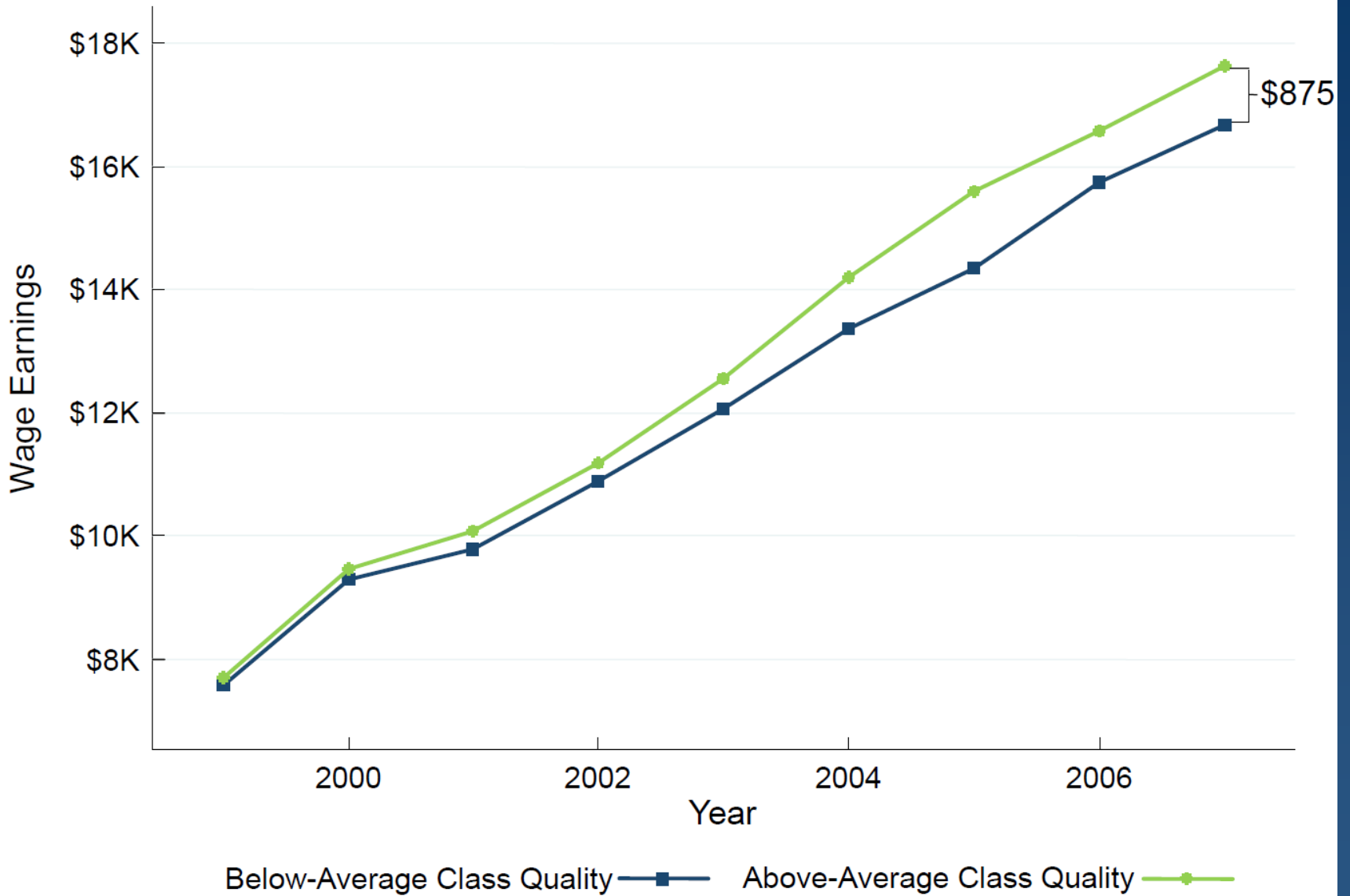
4. Teacher quality is the most important determinant of the effectiveness and long-term benefits of pre-k

5. Teacher professional development that is focused on the delivery of particular experiences and skills has a positive impact on children's learning

6. Frequent opportunities for children in small groups to engage in learning interactions with an trained adult enhance the effectiveness of pre-k programs

7. Few pre-k programs assess teacher quality or have mechanisms for encouraging more effective teachers to stay and ineffective teachers to leave

Effect of Class Quality on Earnings by Year



Facts and likely facts

8. Free- and low-cost pre-k and child care programs provide a substantial financial benefit to families and increase the likelihood that low-income mothers will work full time and acquire more education
9. Parents want choice in where and when they send their children to pre-k as well as the type of program in which their child is enrolled
10. Parents and public officials face severe information gaps with respect to the quality of pre-k services

POLICY IMPLICATIONS

State-level conclusions and policy recommendations

1. Target public funding for pre-k to children and families in greatest need
2. Provide support to pre-k providers in the selection and implementation of proven curriculum
3. Support programs and support pre-k providers in delivering programs that engage parents and enhance opportunities for learning at home
4. Invest in smaller child/adult ratios only to the degree that they enhance rich small group interactions in classrooms – and experiment with efficient ways to do this, e.g., volunteers, part-time retirees

State-level conclusions and policy recommendations

5. Pay for teacher effectiveness not teacher credentials
6. Collect information on teacher and center effectiveness, including but not limited to information derived from assessing children's social and pre-academic skills
7. Make such information available to parents to support choice, and to providers and systems to support quality improvement
8. Conceptualize and measure the value of pre-k expenditures by their effects on families, not just their impact on school readiness

State-level conclusions and policy recommendations

9. Support parents with services that fit their needs

10. Enable parental choice

11. Bring state pre-k, Head Start, and subsidized child care under the same umbrella

12. Create a system that can learn

13. Be realistic

- don't expect transformational impacts from a one-year program for four-year-olds
- don't take your eye off the ball of k-12 school reform
- don't spend more than you have to but don't cheap out and send disadvantaged children to centers that have such low levels of funding that they are likely to do harm