

***EARLY CHILDHOOD  
REGRESSION DISCONTINUITY STUDY***

**STUDY BRIEFING  
September 13, 2016**

# The Study

- **There is increasing interest across the Nation and the state of Connecticut regarding the effectiveness of preschool programs as a means of increasing school readiness and closing achievement gaps**
- **Public Act 13-184 (FY14/FY15 Budget Bill) provided funding for the study with CASE named to conduct study on behalf of the Connecticut General Assembly**
- **Public Act 15-244 authorized additional funding for the study based on additional work effort related to suspension of the state's Prekindergarten Information System (PKIS)**
- **The purpose of the study is to identify the effect that full-day/school-day, state-funded preschool has on children's academic achievement and social skills at kindergarten entry**

# The Process

- **Research Team:**
  - **Neag School of Education, UConn**
    - ✓ **Study Manager: Bianca Montrosse-Moorhead, with professors graduate students, and certified assessors**
  - **CASE Staff, with Study Advisors**
- **Research Using Identified Methods**
- **Study Committee**
- **Study Reviewers**
- **Study Contacts/Stakeholders**
- **Guest Speaker Presentations**

# Study Committee

## **Elizabeth Aschenbrenner**

Education Consultant; School Readiness  
Liaison: Killingly, Plainfield, Putnam

## **Regina S. Birdsell**

Assistant Executive Director  
Connecticut Association of Schools

## **Gary Henry, PhD**

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## **Jessica Powell, PhD**

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## **Sudha Swaminathan, PhD**

Professor, Early Childhood Education  
Eastern Connecticut State University

## **William Teale, EdD**

Professor, Director of Center for Literacy  
University of Illinois at Chicago



# Study Research Team

## ➤ UConn, Neag School of Education

- **Study Manager: Bianca Montrosse-Moorhead, PhD**, Assistant Professor, Measurement, Evaluation, and Assessment
- **Research Team Members**
  - ✓ **Shaun Dougherty, EdD**, Assistant Professor, Ed. Leadership and Policy
  - ✓ **Hannah Dostal, PhD**, Assistant Professor, Literacy Education
  - ✓ **Tamika La Salle, PhD**, Assistant Professor, School Psychology
  - ✓ **Jennie Weiner, EdD**, Assistant Professor, Educational Leadership
- **Research Team Associates**
  - ✓ **Yujia Li, MA**, Measurement, Evaluation, and Assessment
  - ✓ **Maria Avita, BA**, School Psychology

## ➤ *CASE Staff*

- **Richard Strauss**, Executive Director
- **Terri Clark**, Associate Director
- **Ann Bertini**, Assistant Director for Programs
- **W. Steven Barnett, PhD, CASE Study Advisor**; Director, National Institute for Early Education Research, Rutgers University
- **Mary Beth Bruder, PhD, CASE Study Advisor**; Professor of Pediatrics; Director, A.J. Pappanikou Center for Excellence and Developmental Disabilities Research, Education, and Service, UConn Health Center



# Academy Member Reviewers

- **Theodore Holford, PhD**, Susan Dwight Bliss Professor of Public Health (Biostatistics), Yale School of Public Health
- **Nalini Ravishanker, PhD**, Professor and Undergraduate Director, Department of Statistics, UConn

# The Study

- **1.0 STUDY BACKGROUND**
- **2.0 INTRODUCTION AND STUDY METHODS**
- **3.0 IMPLEMENTATION**
- **4.0 DATA COLLECTION AND ANALYSIS**
- **5.0 DISCUSSION AND IMPLICATIONS**

# The Study: Appendices (1)

- **APPENDIX A: THE RESEARCH TEAM**
- **APPENDIX B: SUMMARY OF AGE-CUTOFF RD STUDIES INVESTIGATING THE EFFECTS OF PUBLICLY FUNDED PREKINDERGARTEN PROGRAMS ON CHILDREN'S ACADEMIC AND SOCIAL-EMOTIONAL SKILLS**
- **APPENDIX C: TEACHER/PARENT GUARDIAN QUESTIONNAIRES**
- **APPENDIX D: UCONN'S INSTITUTIONAL REVIEW BOARD (IRB) APPROVALS**



# The Study: Appendices (2)

- **APPENDIX E: ANALYSIS OF POPULATION AND SAMPLES, AND OF TREATMENT AND CONTROL GROUPS**
- **APPENDIX F: FINAL POWER ANALYSIS**
- **APPENDIX G: ANALYSIS OF BASC-3 RESPONSES**
- **APPENDIX H: ADDITIONAL TESTS OF ESTIMATE ROBUSTNESS**

# Chapter 1

## Study Background



# Nationwide Perspective

## *Supplemental to Report*

### ➤ Why Might Prekindergarten Be Needed?

- Many children face the challenge of poverty with minority students often being particularly at risk—42.5% of African-American children and 37.1% of Hispanic children under age 5 (*Center for American Progress, 2012*)
- Children from low-wealth backgrounds in rural or urban centers experience a number of barriers to academic and social development (*Brooks-Gunn & Markham, 2005; Lugo-Gil & Tamis-LeMonda, 2008*); for example, often being 4 to 6 months behind in emergent literacy (*Guerrero et. al, 2012*) and vocabulary (*Hart & Risley, 1995*)
- These gaps persist over time, in 2013 the gap between the average scores of white and black students is 26 points for both 4<sup>th</sup> grade math and 4<sup>th</sup> grade (*NAEP, 2013*)
- Remedial investments in young children, particularly those most disadvantaged, improve outcomes and reduce differences at school entrance (*Cunha & Heckman, 2008*) including those relating to social adjustment (*Mashburn et al., 2008*)

## Nationwide Perspective (2)

- **National Institute for Early Education Research (NIEER) 2012-13 annual report indicates (Barnett et al, 2013):**
  - **Quality of programs remain variable with different degrees of emphasis and/or alignment with best practice to develop early academic and social skills**
  - **2013 was the first year that all 50 states (and D.C.) had “comprehensive early learning standards” covering all areas identified as fundamental by the National Education Goals Panel**

# Connecticut

- **Connecticut ranks high in early childhood spending, 3<sup>rd</sup> for state-expenditures and 2<sup>nd</sup> for total expenditures**
- **Connecticut met 6 out of the 10 NIEER standards:**
  - ✓ **comprehensive early learning standards**
  - ✓ **specialized training in prekindergarten**
  - ✓ **class sizes no larger than 20 children**
  - ✓ **a staff-child ratio of 1:10 or better**
  - ✓ **vision, hearing, and health screenings and referrals**
  - ✓ **home visits or home visit referrals**

# Purpose of Study

- To investigate the immediate effects for prekindergarten children who attend state-funded (*i.e., School Readiness Program funded*), full-day/school-day preschool in Connecticut
- Evaluation Questions:
1. Do children who attend full-day/school-day state-funded preschool programs enter kindergarten with better language and literacy skills than if they had not attended the program?
  2. Do children who attend full-day/school-day state-funded preschool programs enter kindergarten with better mathematics skills than if they had not attended the program?
  3. Do children who attend full-day/school-day state-funded preschool programs enter kindergarten with better social skills than if they had not attended the program?

# Chapter 2

## Introduction and Study Methods



# Connecticut Pre-K Treatment and Dosage Differences

## ➤ School Type (Treatment)

- Federal Head Start
- Federal Early Start
- CT Head Start
- **School Readiness**
- Magnet, Charter, and Private Providers

## ➤ Dosage

- Extended Day
- **Full-Day**
- **School-Day**
- Half-Day



# Study Methods (1)

## *What is Regression Discontinuity?*

- Regression discontinuity is a research method that facilitates the ability to make claims about cause-and-effect without needing to use a lottery
- Particularly useful in studies where the treatment (*in this case, state-funded prekindergarten*) cannot or should not be randomly assigned through a lottery process to determine who gets to participate

# Study Methods (2)

## *What is Regression Discontinuity?*

- Method uses a cut-off variable to determine who is in the treatment group and who is in the control (*to make them “equal in expectation”*)



# Study Methods (3)

*What type of conclusions can be drawn from a regression discontinuity study?*

<b>Can Conclude from RD</b>	<b>Cannot Conclude from RD</b>
<b>On average, that treatment makes a positive difference</b>	<b>What about the treatment makes the difference</b>
<b>This treatment causes better results, on average</b>	<b>That this is the best of all possible treatments</b>
<b>The tested treatment does produce positive results, on average, in the population</b>	<b>That this is the most efficient (resources or cost) treatment</b>

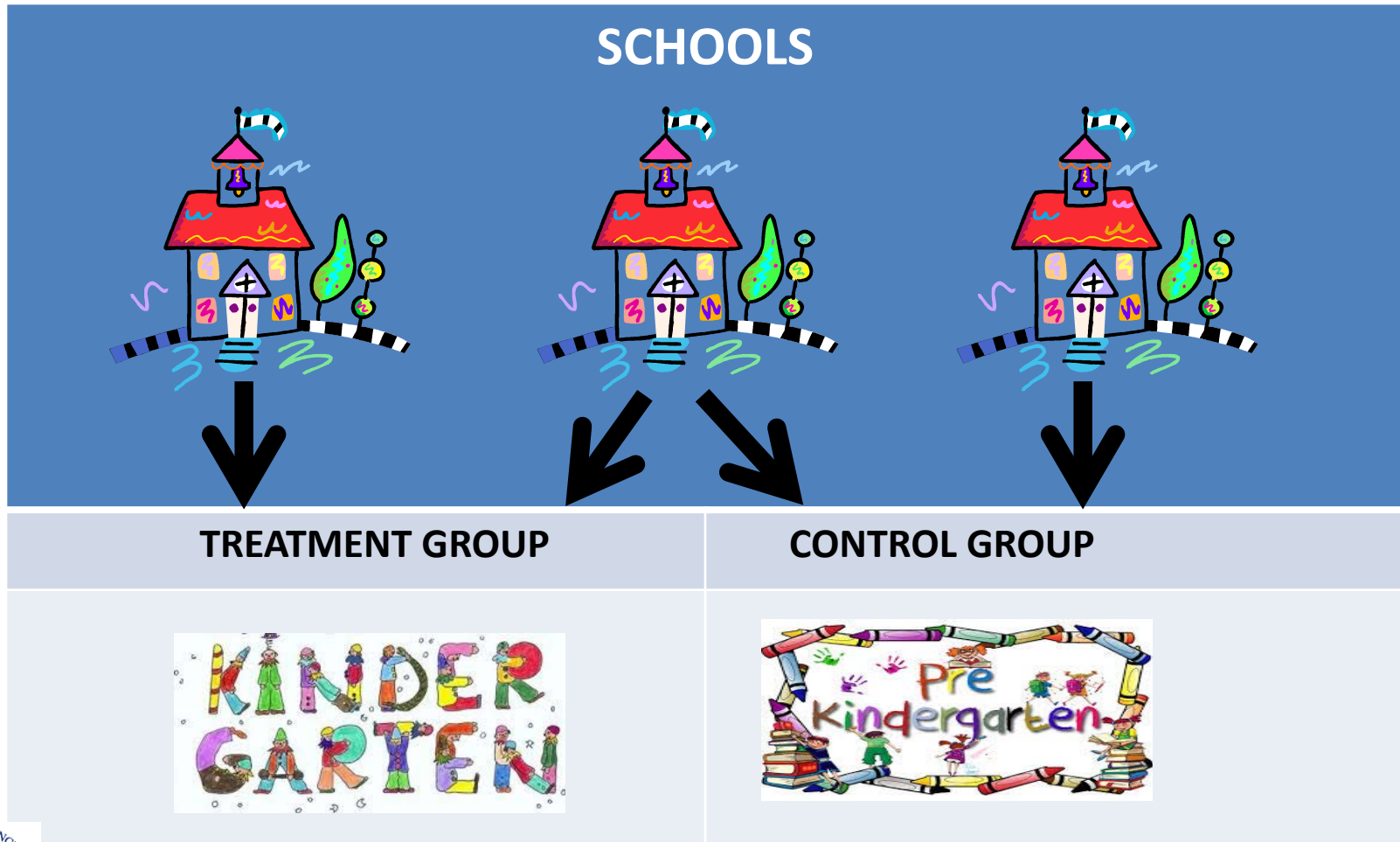
# Study Methods (4)

## *Sample*

- **1,300 students total (650 in treatment group, 650 in control group) were randomly selected to participate**
  - **Assumption: Student enrollment patterns are not changing within mature prekindergarten schools/centers (open 3+ years)**
  - **Statistically tested this assumption through a feeder analysis:**
    - ✓ **Assessed characteristics of prior students (2011-14), including the prekindergarten program in which they enrolled (i.e., not just school readiness funded) and where they subsequently went to kindergarten**
    - ✓ **Assessed attrition from prekindergarten to kindergarten**
    - ✓ **Assessed the stability of patterns over time**
  - **Feeder analysis confirmed that enrollment patterns were stable, and thus a random selection process would work**

# Study Methods (5)

## *Randomly Sampled Students with Sites*



# Study Methods (6)

## *Outcomes Measured*

- Early Literacy Skills
- Early Numeracy Skills
- Early Oral Language Skills
- Early Vocabulary Skills
- Social Development

Assessments to be Deployed	Associated Skills Color
Woodcock-Johnson, 4 <sup>th</sup> Ed.(WJ-IV)	Green
Peabody Picture Vocabulary Tests , 4 <sup>th</sup> Ed.(PPVT- IV)	Blue
Behavior Assessment Scale for Children, 2 <sup>nd</sup> Ed. (BASC-2)	Yellow

# Study Methods (7)

## *Outcomes Measured*

	Test Evidence	Sub-test	Skill Focus	Max # of items	Time to Complete (mins.)
Woodcock-Johnson, 4 <sup>th</sup> Ed.(WJ-IV)	Basic Reading	Word Attack	Phonemic Awareness	32	5
		Letter-Word Identification	Letter/word recognition	76	5
	Oral Language	Picture Vocabulary	Expressive Vocab	44	5
		Oral Comprehension	Comprehension	34	5
	Broad Math	Applied Problems	Problem solving	63	5
		Calculation	writing numbers to numerical operations	42	5
		Math Fluency	Quickly solving numerical operations	Time-based	Time-based

# Study Methods (8)

## *Outcomes Measured*

	<b>Test Evidence</b>	<b>Sub-test</b>	<b>Skill Focus</b>	<b>Max # of items</b>	<b>Time to Complete (mins.)</b>
<b>Peabody Picture Vocabulary Tests , 4<sup>th</sup> Ed. (PPVT- IV)</b>	<b>Picture Vocabulary</b>	<b>N/A</b>	<b>Picture to word recognition</b>	<b>228</b>	<b>10-15</b>



# Study Methods (9)

## *Outcomes Measured*

	Test Evidence	Sub-test	Skill Focus	# of items	Time to Complete (mins.)
Behavior Assessment Scale for Children, 2 <sup>nd</sup> Ed. (BASC-2)	Social Development	N/A	<p>Externalizing Problems</p> <p>Internalizing Problems</p> <p>Behavioral Symptoms Index</p> <p>Adaptive Skills</p>	<p>Teacher Rating Scales (TRS): 100-139 items</p> <p>Parent Rating Scales (PRS) contain 134-160 items</p>	<p>10-20 (per child)</p> <p>10-20 (per child)</p>

# Chapter 3

# Implementation



# Implementation Timeline (1)

## *Sample of Key Milestones 2014*

<b>May</b>	<ul style="list-style-type: none"><li>✓ CASE under contract with the CGA to conduct the RD Study</li><li>✓ Research Team (UConn) selected, study advisors identified, and study committee established</li><li>✓ Initial meetings with OEC and CSDE to provide a study overview and review study tasks involving each agency, including negotiation of CSDE MOU for access to administrative data</li></ul>
<b>June</b>	<ul style="list-style-type: none"><li>✓ CSDE/UConn MOU for access to administrative data executed</li><li>✓ First study committee meeting with presentations by NIEER on RD studies and the Research Team on the proposed methodological approach for the study</li><li>✓ Scope of Work Task 1: Research Plan section of study report completed.</li></ul>
<b>July</b>	<ul style="list-style-type: none"><li>✓ IRB approval procured.</li></ul>
<b>Aug.</b>	<ul style="list-style-type: none"><li>✓ Notification received that Prekindergarten Information System (PKIS) eliminated</li><li>✓ Decision made to postpone study 1 year</li><li>✓ Solution adopted to obtain “PKIS-like” prekindergarten data</li></ul>

# Implementation Timeline (2)

## *Sample of Key Milestones 2015*

<b>Sept.</b>	<ul style="list-style-type: none"><li>✓ Ordered data collection assessment materials</li><li>✓ Assessor recruitment initiated and completed</li><li>✓ IRB approval secured for data collection</li></ul>
<b>Oct.</b>	<ul style="list-style-type: none"><li>✓ School notification begins</li></ul>
<b>Nov.</b>	<ul style="list-style-type: none"><li>✓ Data collection begins</li></ul>
<b>Dec.</b>	<ul style="list-style-type: none"><li>✓ Data collection continued</li><li>✓ Decision made to extend data collection thru January</li></ul>

# Implementation Timeline (3)

## *Sample of Key Milestones 2016*

<b>Jan.</b>	✓ <b>Decision made to extend data collection thru February</b>
<b>Feb.</b>	✓ <b>Decision made to extend data collection thru March</b>
<b>Mar.</b>	✓ <b>Data collection completed</b>
<b>Apr.</b>	✓ <b>Data analysis completed</b>
<b>May</b>	✓ <b>All chapters of final report finalized</b>

# Chapter 4

## Data Collection and Analysis

# Final Sample (1)

	Prekindergarten (2015-16)	Kindergarten (2015-16)
<b>Number in group</b>	<b>323</b>	<b>206</b>
<b>Gender (%)</b>		
<b>Female</b>	<b>50.31</b>	<b>54.93</b>
<b>Male</b>	<b>49.69</b>	<b>45.07</b>
<b>Ethnicity (%)</b>		
<b>White</b>	<b>26.02</b>	<b>36.54</b>
<b>African American/Black</b>	<b>31.79</b>	<b>29.33</b>
<b>Hispanic/Latino</b>	<b>45.03</b>	<b>42.79</b>
<b>Asian</b>	<b>3.73</b>	<b>3.37</b>
<b>Other</b>	<b>9.09</b>	<b>6.25</b>

# Final Sample (2)

	Prekindergarten (2015-16)	Kindergarten (2015-16)
<b>Lunch (%)</b>		
<b>Free</b>	<b>60.44</b>	<b>51.94</b>
<b>Reduced</b>	<b>4.97</b>	<b>5.34</b>
<b>Age when assessed (Mean/SD)</b>	<b>4.3 (0.54)</b>	<b>5.4 (0.32)</b>



# Final Sample (3)

	Prekindergarten (2015-16)	Kindergarten (2015-16)
<b>Number in group</b>	<b>323</b>	<b>206</b>
<b>Average Standard Scores (Mean/SD)</b>		
<b>Basic Reading</b>	<b>91.78 (11.93)</b>	<b>98.24 (10.99)</b>
<b>Broad Math</b>	<b>84.75 (20.22)</b>	<b>91.49 (12.99)</b>
<b>Picture Vocabulary</b>	<b>96.10 (15.44)</b>	<b>101.15 (13.98)</b>
<b>Oral Comprehension</b>	<b>94.16(16.09)</b>	<b>96.70 (14.83)</b>

***Note: SD = Standard Deviation. PPVT-4 = Peabody Picture Vocabulary Tests, Fourth Edition. WJ-IV = Woodcock-Johnson, Fourth Edition***

# Total Assessors Used: 58

<b>University Based Assessors</b>	<b>Number of Undergrad. Assessors</b>	<b>Number of Graduate Assessors</b>
<b>UConn</b>	<b>32</b>	<b>12</b>
<b>Southern Connecticut State University</b>	<b>0</b>	<b>3</b>
<b>Fairfield University</b>	<b>0</b>	<b>2</b>
<b>Springfield College</b>	<b>0</b>	<b>1</b>
<b>Other, Non-University Based Assessors</b>	<b>Number of Other Assessors</b>	
<b>Retired School Psychologists</b>	<b>2</b>	
<b>UConn Faculty</b>	<b>6</b>	

# Data Analysis – Regression Discontinuity

- **Step 1: Confirm the cut-off appears random**
  - Student records from the sample showed that the distribution of birthdates is smooth and continuous around the January 1<sup>st</sup> cut off date
- **Step 2: Confirm the study has enough participants on either side of the cut-off**
  - Student records from the sample showed that there are enough students on either side of the cut-off.
- **Step 3: Confirm students on either side are “equal in expectation”**
  - There were no meaningful statistically significant differences across groups in selected demographics.
- **Step 4: Use date of birth and eligibility status to predict student outcomes**
  - Gaps at the point of the cut-off provide insights into differing performance levels between the groups on average
- **Step 5: Test robustness using different bandwidths and functional forms**
  - None of the results are sensitive to differences in functional form or bandwidth

# Research Question #1

- Do children who attend full-day/school-day state-funded preschool programs enter kindergarten with better language and literacy skills than if they had not attended the program?

# Research Question #1

## *Early Literacy*

Claim	Test Evidence	Measures	What Students Do on this Test	Skill Focus
<p>Large, positive and statistically significant effects on a subset of student's early <u>literacy</u> skills (0.69 SD)</p>	<p>Basic reading</p>	<p>WJ-IV: Letter-word identification</p>	<p>Recognizing and naming printed letters and words</p>	<p>Letter/word recognition</p>
		<p>WJ-IV: Word attack</p>	<p>Reading made-up words that conform to conventional spelling rules</p>	<p>Phonemic awareness</p>

# Research Question #1

## *Early Vocabulary*

Claim	Test Evidence	Measures	What Students Do on this Test	Skill Focus
Suggested positive, but non-statistically significant, effects on student's early <u>vocabulary</u> skills	Picture vocabulary	PPVT-IV	Listening to a word describing one of four pictures and then pointing to the picture that the word describes	Picture-to-word recognition

# Research Question #1

## *Early Oral Language*

Claim	Test Evidence	Measures	What Students Do on this Test	Skill Focus
Suggested positive, but non-statistically significant, effects on student's <u>early oral language</u> skills	Oral Comprehension	WJ-IV: Picture Vocabulary	Listening to a word describing one of four pictures and then pointing to the picture that the word describes	Picture-to-word recognition
		WJ-IV: Oral Comprehension	Listening to an oral passage and identifying a missing key word that makes sense	Listening comprehension

# Research Question #2

- Do children who attend full-day/school-day state-funded preschool programs enter kindergarten with better mathematics skills than if they had not attended the program?



# Research Question #2

## *Early Numeracy*

Claim	Test Evidence	Measures	What Students Do on this Test	Skill Focus
<p><b>Large, positive and statistically significant effects for most student's early <u>numeracy</u> skills (0.48 SD)</b></p>	<p><b>Broad math</b></p>	<p><b>WJ-IV: Calculations</b></p>	<p><b>Arithmetic computation with paper and pencil</b></p>	<p><b>Writing numbers to numerical operations</b></p>
		<p><b>WJ-IV: Math Fluency</b></p>	<p><b>Simple calculations for three minutes</b></p>	<p><b>Quickly solving numerical operations</b></p>
		<p><b>WJ-IV: Applied Problems</b></p>	<p><b>Oral, math "word problems," solved with paper and pencil</b></p>	<p><b>Math problem solving</b></p>

## Research Question #3

- Do children who attend full-day/school-day state-funded preschool programs enter kindergarten with better social skills than if they had not attended the program?

# Research Question #3

## *Social Skills*

Claim	Test Evidence	Measures	What Parents/Teachers Do on this Test	Skill Focus
Unknown effects for student's early <u>social skills</u>	Social Development	N/A	Answer survey questions	Externalizing Problems
				Internalizing Problems
				Behavioral Symptoms Index
				Adaptive Skills

# Chapter 5

## Discussion and Implications

# Conclusions (1)

## Can Conclude from RD

**On average, the School Readiness full-day or school-day prekindergarten programs makes a positive difference in the areas identified as statistically significant. Specifically, prekindergarten students who attend School Readiness full-day or school-day programs do better, on average, in early literacy and early numeracy.**

# Conclusions (2)

## Cannot Conclude from RD

➤ **What about the School Readiness program makes a positive impact?**

The RD design does not provide information about the quality of instruction, the curriculum resources, or other factors that might have made these findings vary across the sample

➤ **What is the best of all possible School Readiness programs?**

This study cannot indicate whether another model of delivery might be better, nor can the study indicate comparative differences in delivery between full-day, school-day, extended-day, and half-day programming

➤ **Which aspects of the School Readiness program generated the most valuable outcomes?**

This study cannot indicate the cost-benefit associated with different funding configurations

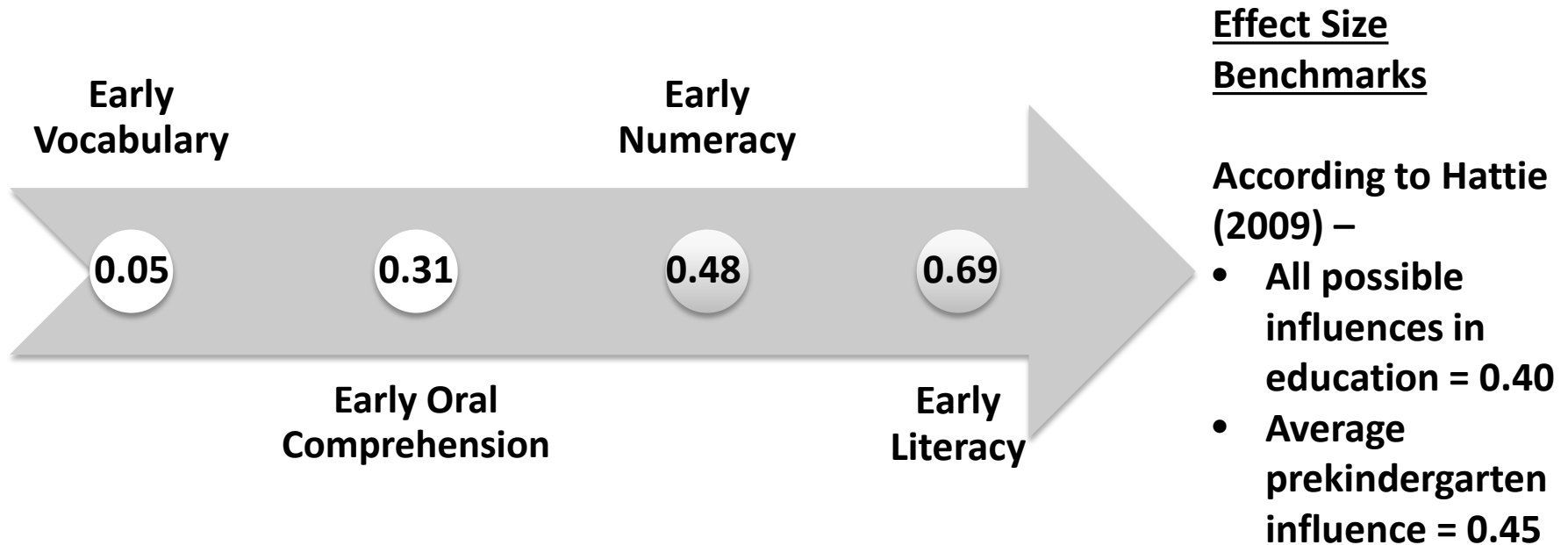
# Conclusions (3)

## ➤ Two key limitations of this study and efforts to address them are as follows

Limitations	How Addressed
<b>Representativeness (Participation rate of 40.7%)</b>	<ul style="list-style-type: none"><li>• Frequent updates throughout the planning phase</li><li>• Meetings with School Readiness program liaisons</li><li>• Donation of additional administrative support from UConn</li><li>• Consistent with prior studies (<i>Peisner-Feinberg, et al., 2014; Lipsey, et al., 2015</i>)</li></ul>
<b>Data Collection Window (Nov. – Mar.)</b>	<ul style="list-style-type: none"><li>• Statistically addressed this shift in timeline</li><li>• Consistent with prior studies (<i>e.g., Lipsey, Farran, Bilbrey, Hofer, and Dong, 2011</i>)</li><li>• Results indicated no statistical effect of time of testing on the results</li></ul>

# Conclusions (4)

## ➤ How important are effects?



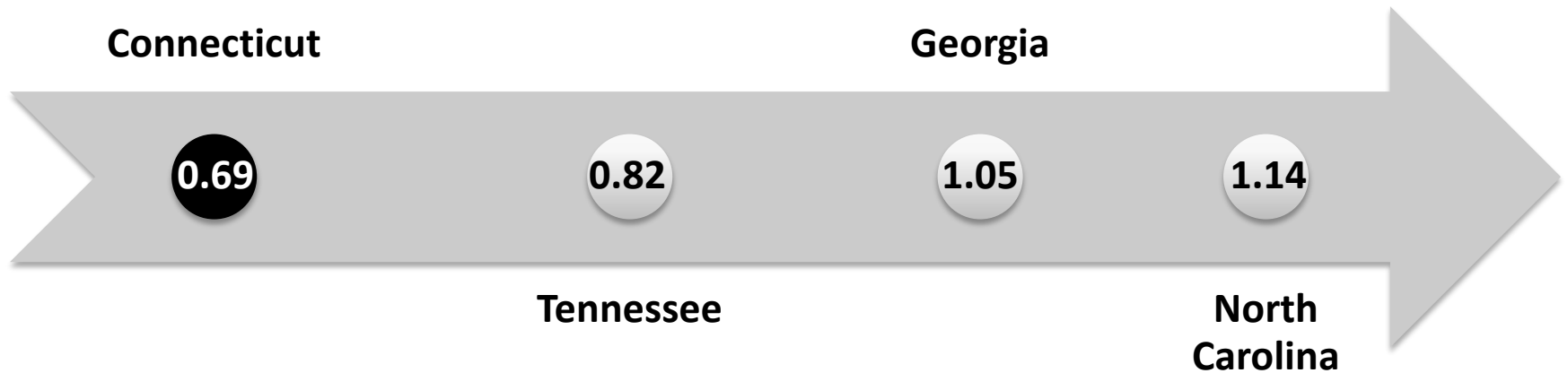


# Conclusions (5)

- **Interpreting Connecticut Effects in Relation to Prekindergarten Effects Found in Other States**

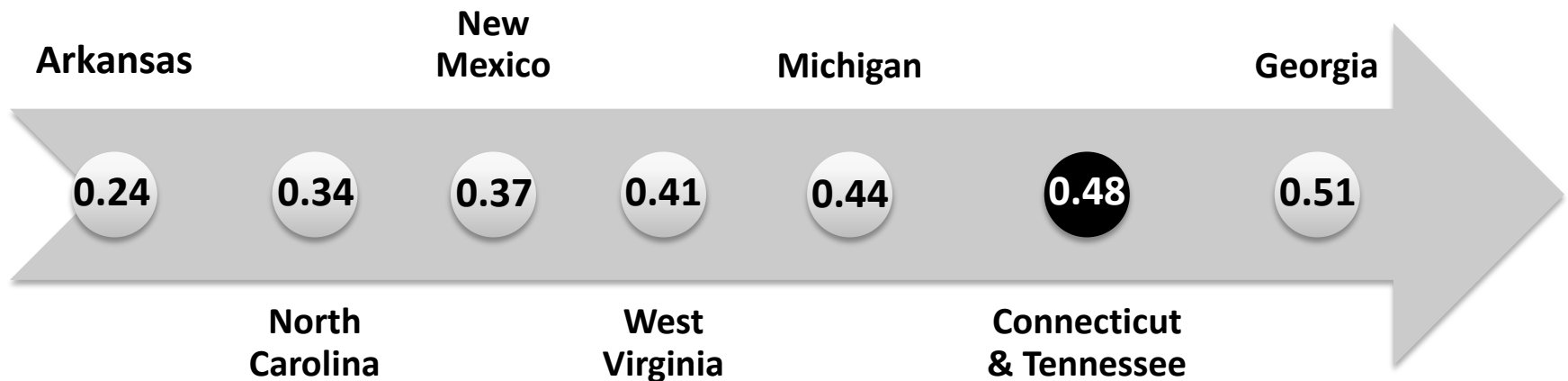
# Conclusions (5)

## Early Literacy – Statistically Significant



# Conclusions (6)

## Early Numeracy – Statistically Significant



# Conclusions (7)

- **Interpreting Connecticut Effects in Relation to Prekindergarten Effects Found in Other Studies**
  - Effect sizes reported for other state-funded prekindergarten programs range from .23–.53 (*Gilliam & Zigler, 2001*)
  - Effect sizes for prekindergarten programs generally from .10 to .13 (*Magnuson, et al., 2004*)
  - Effect sizes for high-quality childcare programs seldom exceed .10 (*NICHD Early Child Care Research Network & Duncan, 2003; Peisner-Feinberg et al., 2011*)
  - Effect sizes for the Abecedarian project were .73 and .79 for children ages 4 and 5 years old (*Ramey, et al., 2000*)
  - Effect sizes for Perry Preschool program were .60 (*Ramey et al., 1985*)

# Recommendations

## Future Evaluation Questions (1)

<b>What works?</b>	<ol style="list-style-type: none"><li>1. Do replication studies support impact study findings across different cohorts of students?</li><li>2. Do longitudinal replication studies support impact study findings long-term?</li><li>3. Do children who attend full-day or school-day, state-funded preschool programs enter kindergarten with better social skills than if they had not attended the program?</li></ol>
<b>What works for whom?</b>	<ol style="list-style-type: none"><li>1. Do results vary by state-funded preschool program type?</li><li>2. Do results vary by student characteristics (e.g., gender, race/ethnicity, income)?</li><li>3. Do results vary by student skill level (e.g., English proficiency)?</li></ol>

# Recommendations

## Future Evaluation Questions (2)

<b>What works, for whom, and under what conditions?</b>	<ol style="list-style-type: none"><li>1. Do results vary by program quality?</li><li>2. Do results vary by amount of school/system instructional support?</li></ol>
<b>Which aspects are valuable?</b>	<ol style="list-style-type: none"><li>1. What is the relationship between program costs and outcomes observed?</li><li>2. Which aspects of the school readiness program generated the most valuable outcomes?</li></ol>

# Recommendations

## Conducting Future Statewide Prekindergarten Studies

### Low Participation (1)

Strategy	Pro	Con
Mandate that schools and centers participate	Greater participation	Requires change in CT's governance model
Require schools and centers to file a letter of cooperation	Potential for greater participation	Limits generalizability to those that filed a letter
Plan for low participation rates	Minimize concerns about study power beforehand	Increase \$ costs as will need to budget to sample a much larger overall group to ensure adequate participation

# Recommendations

## Conducting Future Statewide Prekindergarten Studies

### Low Participation (2)

Strategy	Pro	Con
Alternative levels of stipends or alternative stipend disbursement methods	Potential for greater participation for parent/guardian and teachers	<ul style="list-style-type: none"><li>• Increase \$ costs</li><li>• No research to inform incentive amount</li><li>• No research specific to teachers or parent/guardian</li></ul>
Alternative parent/guardian data collection strategies	Potential for greater participation for parent/guardian	<ul style="list-style-type: none"><li>• Increase \$ costs</li><li>• Shorter, potentially less informative surveys</li><li>• Requires sharing parental contact and address information</li></ul>



# Recommendations

## Conducting Future Statewide Prekindergarten Studies

### Student-Level Data

- **Data collection system that includes student demographic information (*e.g. race/ethnicity, socio-economic status, gender*) and program information (*e.g., PreK program type, date student entered, date student withdrew*) is needed to:**
  - **Seamlessly follow PreK and K students**
  - **Facilitate the efficient transfer of school and center student data for prekindergarten and kindergarten**
  - **Share data as close to start of year as possible**

# Recommendations

## Funding Future Research Studies

- **Connecticut has history of securing external funding for this type of work (*e.g., 2014 Preschool Development Grant from the US Department of Education*)**
- **Potential sources**
  - **U.S. Department of Education's Institute for Education Sciences**
  - **U.S. Department of Health and Human Service's National Institutes of Health**

# Thank You

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