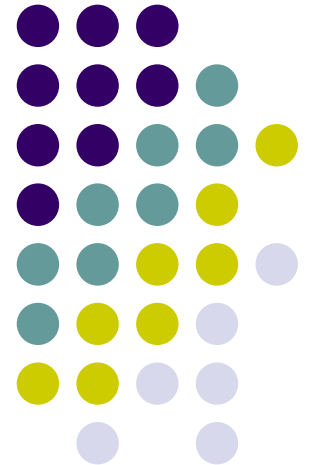


Beginning Origins of Gender Inequality

Barbara Schneider and
Allison Atteberry
University of Chicago

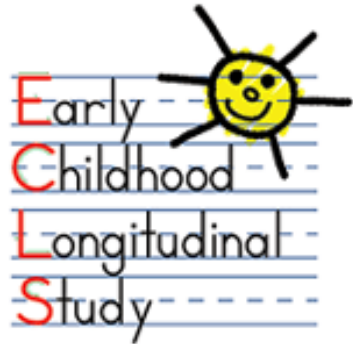


Persisting Gender Inequalities



- Although U.S. society has moved toward more gender-neutral attitudes concerning marriage and labor force participation, significant gender inequalities persist in specific occupations.
 - For instance, women still are less likely to take advanced-level science courses in high school and choose science- or math-related careers (Charles 2004).
- Why is this the case? Some evidence points to early gender socialization evident even as children begin formal schooling.

Early Childhood Longitudinal Study – Kindergarten Class



- We present descriptive, preliminary findings based on ECLS-K of 1998-1999 – an ongoing study that focuses on children’s early school experiences beginning with kindergarten and following children through fifth grade. The study is conducted by the U.S. Department of Education, National Center for Education Statistics
- 1,280 schools were included in the base year, chosen through a multistage, probability sample designed to select a nationally representative sample of children attending kindergarten in 1998-99.
- ECLS-K provides descriptive information on children’s status at entry to school and tracks their progression over the next five years. Each year, the same students within are administered direct cognitive assessments in reading, math, and general skills.
- The ECLS-K also includes information based on questionnaires administered to teachers, parents, and school administrators regarding both academic ability and social behaviors, providing a rich resource to investigate gender differences both in the eyes of teachers and on assessment test scores.

For more information,
please visit
www.nces.ed.gov/ecls

Early Childhood Longitudinal Study – Kindergarten Class



- Our results are based on the full sample of children from both public and private schools (21,247 children) in their kindergarten and first grade year.
- All samples are weighted* to compensate for differential probabilities of selection at each sampling stage and to adjust for the effects of nonresponse.
- We analyze differences among racial/ethnic groups, by parental education and expectations, as well as socio-economic status.

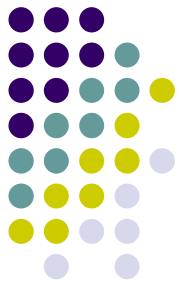
*Unless otherwise noted.

Patterns of Performance



- 1) Cognitive Assessment (Math, Reading, and General Skills)
- 2) Teacher Ratings of Social Behaviors in the Classroom
- 3) Parent Perceptions of Social Behaviors

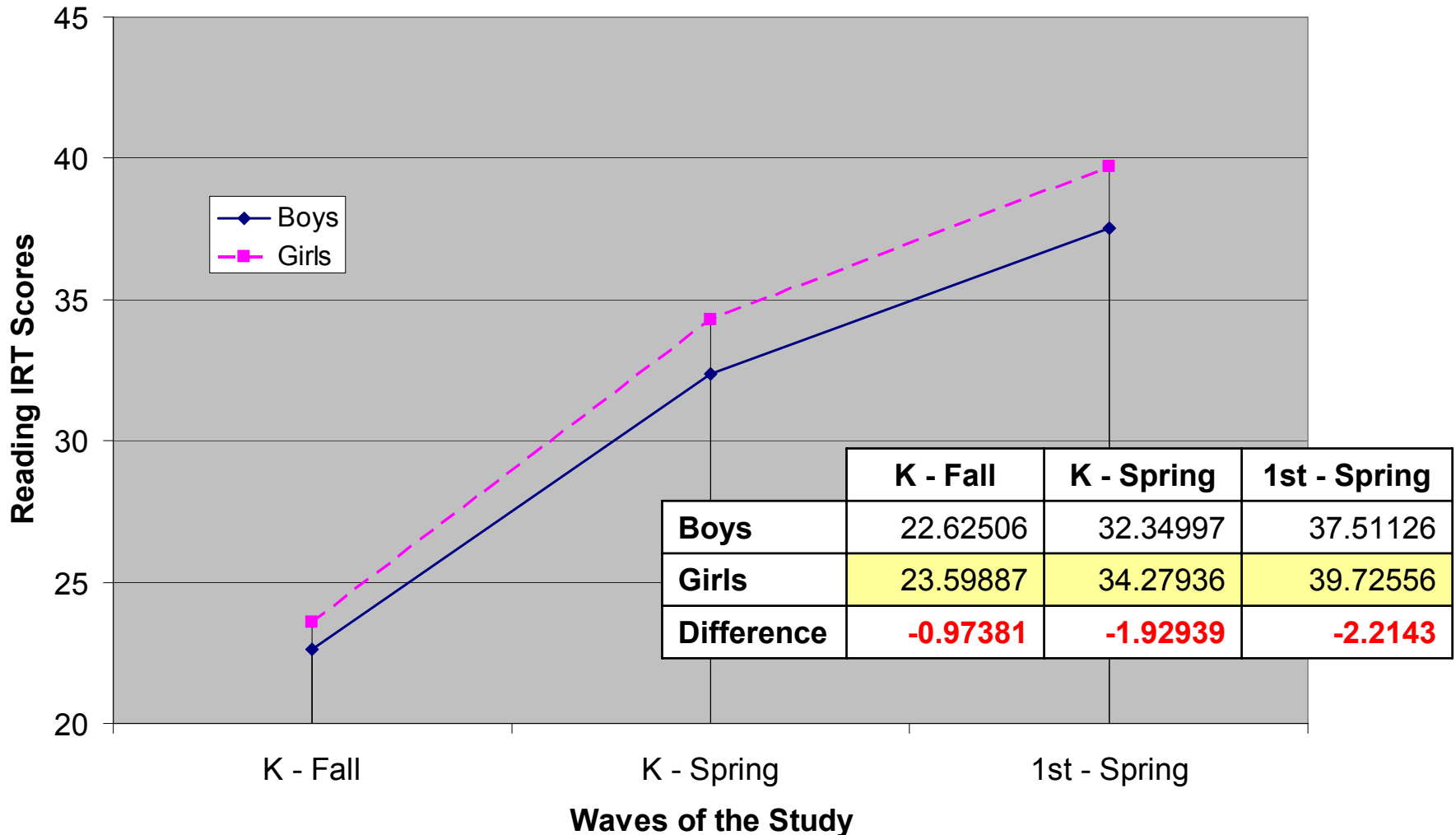
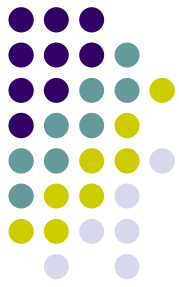
Reading, Math, & General Test



- **Reading Skills Test:** The language and literacy (reading) assessment included questions designed to measure basic skills (print familiarity, letter recognition, beginning and ending sounds, rhyming sounds, word recognition), vocabulary, and comprehension (listening comprehension, words in context).
- **Math Skills Test:** The mathematics assessment items were designed to measure skills in conceptual knowledge, procedural knowledge, and problem solving. The items could be grouped into 5 categories:
 - (1) identifying some one-digit numerals, recognizing geometric shapes, and one-to-one counting up to ten objects;
 - (2) reading all one-digit numerals, counting beyond ten, recognizing a sequence of patterns, and using nonstandard units of length to compare objects;
 - (3) reading two-digit numerals, recognizing the next number in a sequence, identifying the ordinal position of an object, and solving a simple word problem;
 - (4) solving simple addition and subtraction problems; and
 - (5) solving simple multiplication and division problems and recognizing more complex number patterns.
- **General Skills Test:** The third test, called the general test, consisted of science and social studies material. The science items measure two broad classes of science competencies: a) conceptual understanding of scientific facts, and b) skills and abilities to form questions about the natural world, to try to answer them on the basis of the tools and the evidence collected, and to communicate answers and how the answers were obtained.

Gender Differences in Reading Achievement

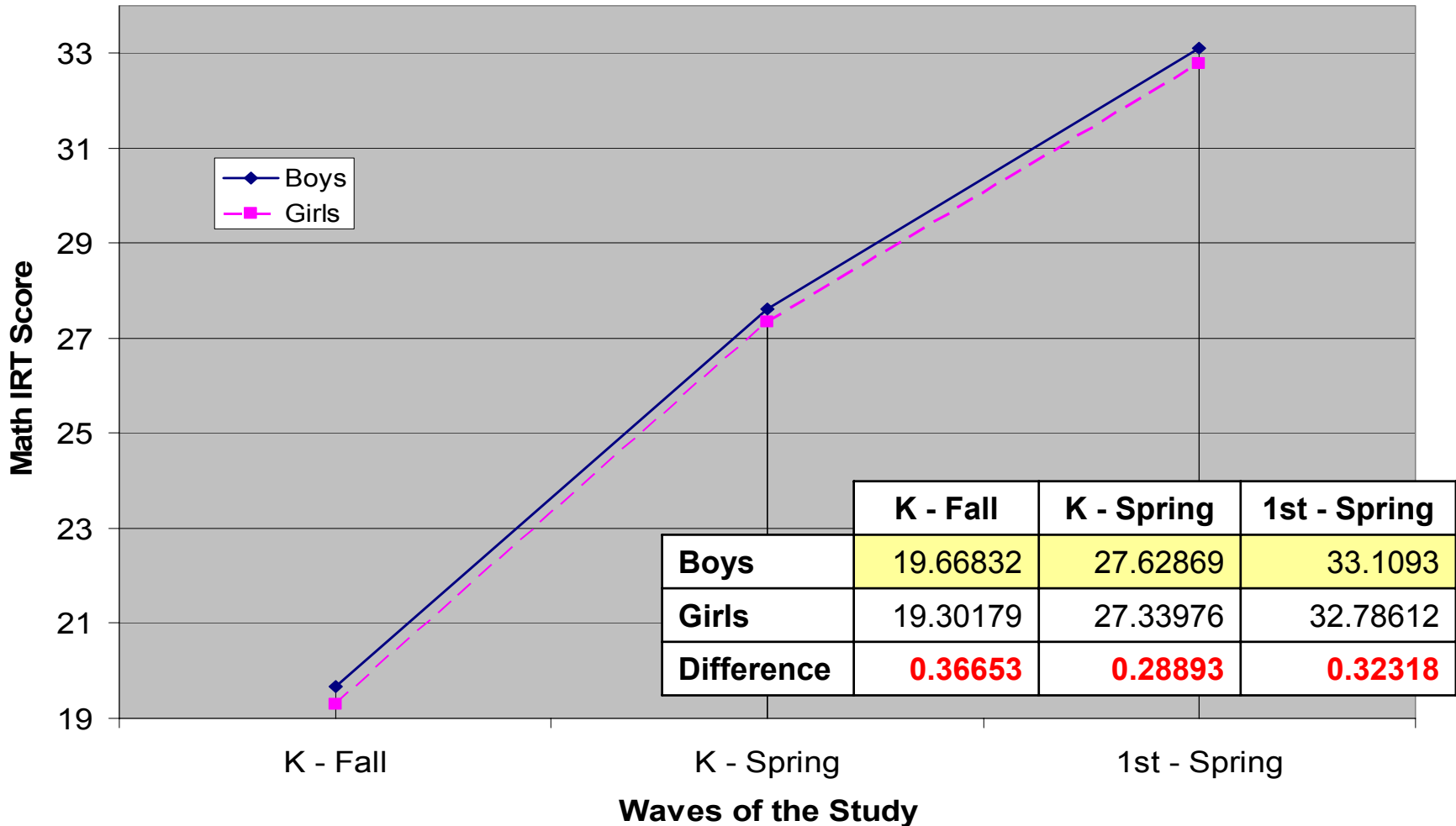
Reading IRT Scores in Kindergarten and First Grade



Gender Differences in Math Achievement



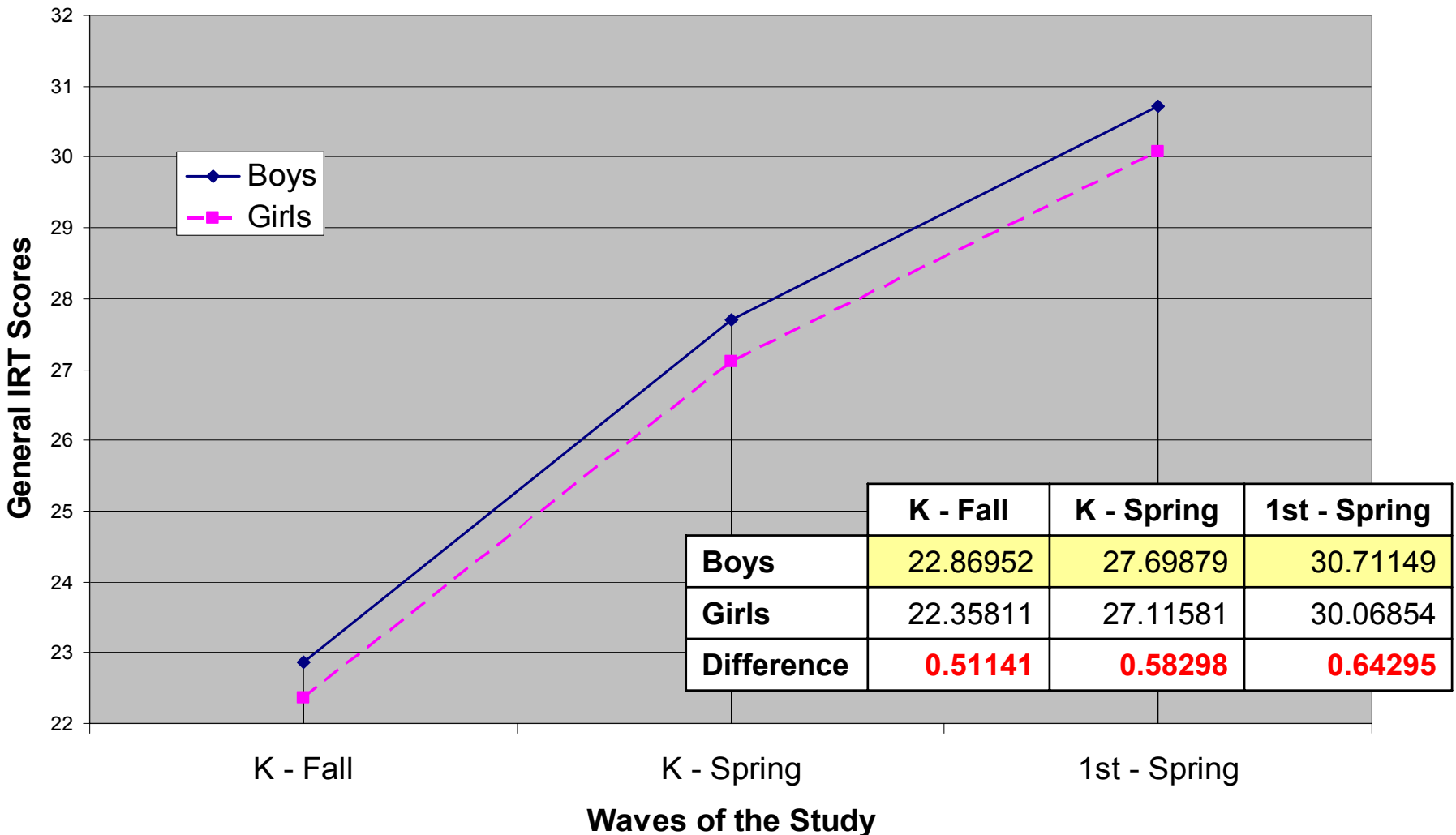
Math IRT Scores in Kindergarten and First Grade



Gender Differences in General Scores



General IRT Scores in Kindergarten and First Grade



Overall Trends in Reading, Math, and General IRT Scores



Kindergarten Public and Private Schools. ANCOVA Tests of Difference Between Boys and Girls

Wave	Category	Unweighted, No Controls	Weighted, No Controls	Weighted, Control for Race / Ethnicity	Weighted, Control for Parental Education	Weighted, Control for Parent Expectations
	<i>Direct Cognitive Assessments</i>					
Fall	Reading IRT Scale Score	F**	F**	F**	F**	F**
Fall	Math IRT Scale Score	M**	M*	M*	M*	M**
Fall	General IRT Scale Score	M**	M**	M**	M**	M**

** = p < .001

* = p < .05

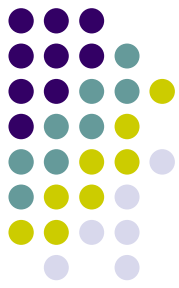
Overall Trends in Reading, Math, and General IRT Scores



Public and Private Schools. ANCOVA Tests of Difference Between Boys and Girls

Wave	Category	Unweighted, No Controls	Weighted, No Controls	Weighted, Control for Race / Ethnicity	Weighted, Control for Parental Education	Weighted, Control for Parent Expectations
	<i>Kindergarten - Spring</i>					
K-Spring	Reading IRT Scale Score	F**	F**	F**	F**	F**
K-Spring	Math IRT Scale Score	M**	M**	M**	M**	M**
K-Spring	General IRT Scale Score	M**	M**	M**	M**	M**
	<i>First Grade - Spring</i>					
1- Spring	Reading IRT Scale Score	F**	F**	F**	F**	F**
1- Spring	Math IRT Scale Score	M**	M**	M**	M**	M**
1- Spring	General Knowledge IRT Scale Score	M**	M**	M**	M**	M**

Are there differences in the gender gap between public and private schools?

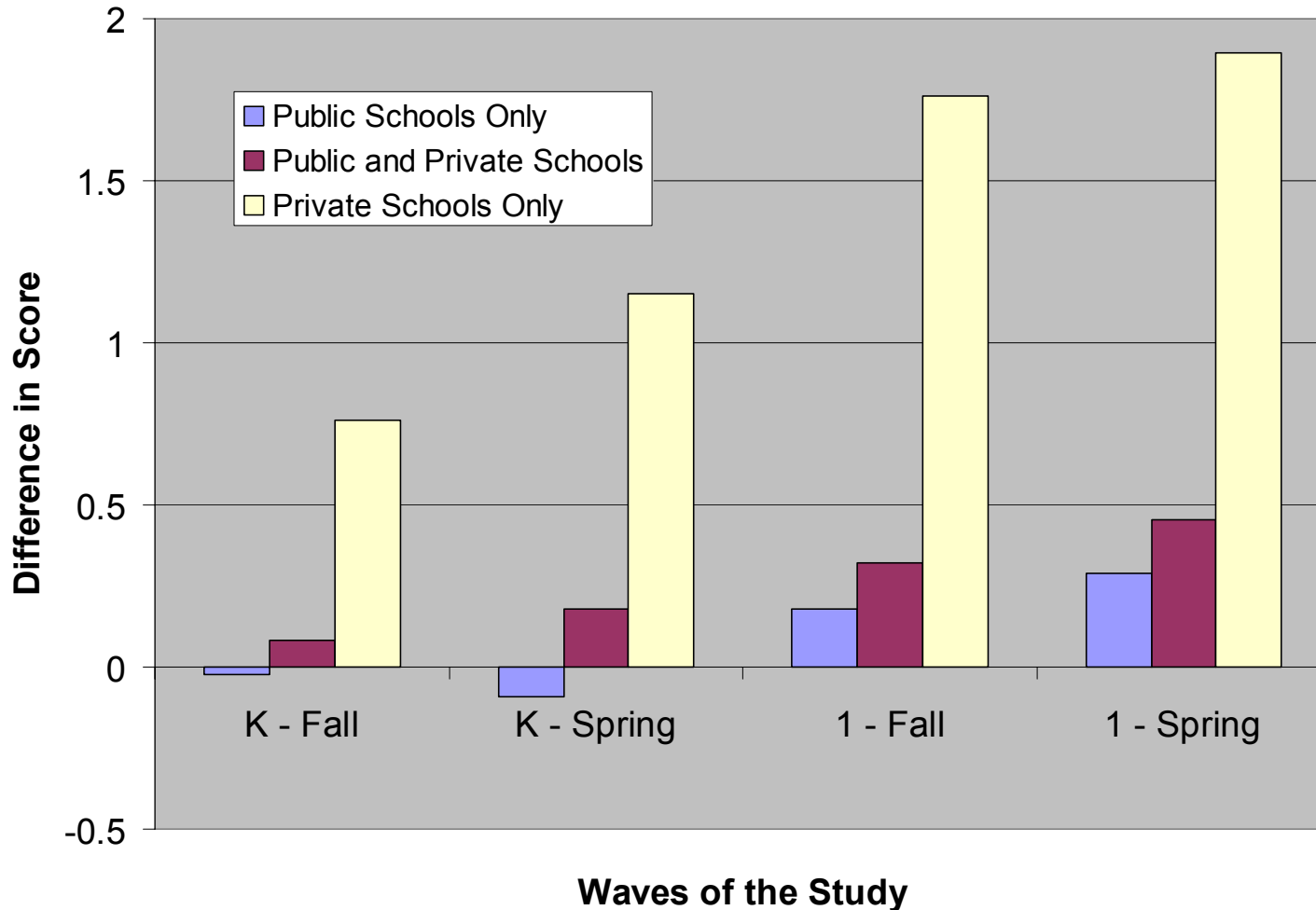


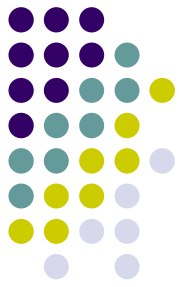
- Evidence indicates that there are gender differences in academic achievement at this early age.
- To investigate why this might be, we began by exploring differences by school sector.

Public Versus Private Schools



Difference Between Boys' and Girls' Math Scores Over Time





Teacher Ratings

- Because gender differences are evident at this first stage of schooling, we next examine the classroom in order to understand what these early experiences are like for boys and girls.
- One main component of the classroom is the teacher and how the teacher rates students.

Description of ECLS Teacher Questions



- Each teacher received a self-administered questionnaire, consisting of three distinct parts. One of those parts asked teachers to report about the sampled children in their classrooms. Teachers were asked to respond to questions about ...
 - the child's academic performance, and
 - the child's social behaviors in the classroom.

Teacher Ratings of Social Behaviors



Category	Unweighted, No Controls	Weighted, No Controls	Weighted, Control for Race / Ethnicity	Weighted, Control for Parental Education	Weighted, Control for Parent Expectations
<i>Kindergarten - Spring</i>					
Approaches to Learning	F**	F**	F**	F**	F**
Self-Control	F**	F**	F**	F**	F**
Interpersonal Skills	F**	F**	F**	F**	F**
Externalizing Problem Behaviors	M**	M**	M**	M**	M**
Internalizing Problem Behaviors	M**	M**	M**	M**	M**

Teacher Ratings of Academic Behaviors



Wave	Category	Unweighted No Controls	Weighted, No Controls	Weighted, Control for Race / Ethnicity	Weighted, Control for Parental Education	Weighted, Control for Parent Expectations
	<i>Other Teacher Rating Variables</i>					
K-Spring	Rate Language Skills	F**	F**	F**	F**	F**
K-Spring	Rate General Skills (Science/Social Studies)	F**	F**	F**	F**	F**
K-Spring	Frequency Child Works at Best Ability	F**	F**	F**	F**	F**
K-Spring	Childs Placement in Higher-Ability Reading Group	F**	F**	F**	F**	F**
K-Spring	Rate Mathematics Skills	M*	M*	M*	M*	M*

Home Origins



- It is surprising to see differences apparent at such a young age in both cognitive tests and teacher-ratings of classroom behaviors.
- Early differences imply that children have been subject to gender socialization behaviors at home even before entering formal schooling.

Parent and Family Functioning Characteristics



- 1) Parental Involvement with Child's Education
- 2) Activities in which Child Participates
- 3) Parents' Ratings of Child Social Skills
- 4) Parent-Child Dynamics
- 5) Child Discipline

Parental Involvement in Child's Education



Wave	Category	Unweighted No Controls	Weighted No Controls	Weighted Control for Race / Ethnicity	Weighted Control for Parental Education	Weighted Control for Parental Expectations
	<i>Kindergarten – Fall or Spring Parent Interview</i>					
Fall	What Educational Degree Expected of Child	F**	F**	F**	F**	
Fall	How Often Do You Read to Your Child	F**	F**	F**	F**	F**
Fall	How Often You Tell Your Child Stories	F**	F**	F**	F**	F**
Fall	Frequency Child Reads Books Outside School	F**	F**	F**	F**	F**
Spring	Frequency Child Reads Books Outside School	F**	F**	F**	F**	F**
Fall	Frequency Parent Contacts School for Concerns	M**	.	M*	.	.

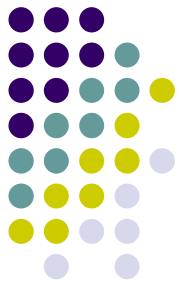
Activities in which Child Participates (1 of 2)



Kindergarten Spring Parent Questionnaire. Students from Private and Public Schools

Category	Unweighted No Controls	Weighted, No Controls	Weighted, Control for Race / Ethnicity	Weighted, Control for Parental Education	Weighted, Control for Parent Expectations
<i>Female Dominated Activities</i>					
Visited the Library	F**	F**	F**	F**	F**
Gone to a Play, Concert, Shows	F**	F**	F**	F**	F**
Visited a Zoo, Aquarium	F**	F**	F**	F**	F**
Takes Dance Lessons	F**	F**	F**	F**	F**
Participates in Organized Clubs	F**	F**	F**	F**	F**
Takes Music Lessons	F**	F**	F**	F**	F**
Takes Drama Classes	F**	F**	F**	F**	F**
Takes Art Lessons	F**	F**	F**	F**	F**
Participates in Organized Performing	F**	F**	F**	F**	F**

Activities in which Child Participates (2 of 2)



Kindergarten Spring Parent Questionnaire. Students from Private and Public Schools

Category	Unweighted No Controls	Weighted, No Controls	Weighted, Control for Race / Ethnicity	Weighted, Control for Parental Education	Weighted, Control for Parent Expectations
<i>Male Dominated Activities</i>					
Participates in Athletic Events	M**	M**	M**	M**	M**
Have Home Computer Child Uses	.	.	.	.	M*
Frequency Child Uses Computer	M**	M**	M**	M**	M**
Attended Sporting Event	M**	M**	M**	M**	M**

Parents' Ratings of Child Social Skills



Wave	Category	Unweighted, No Controls	Weighted, No Controls	Weighted, Control for Race / Ethnicity	Weighted, Control for Parental Education	Weighted, Control for Parental Expectations
	<i>Parent SRS – Spring K</i>					
K-Spring	Approaches to Learning	F**	F**	F**	F**	F**
K-Spring	Self-Control	F**	F**	F**	F**	F**
K-Spring	Sad/Lonely	F**	F**	F**	F**	F**
K-Spring	Social Interaction	F**	F**	F**	F**	F**
K-Spring	Impulsive/Overactive	M**	M**	M**	M**	M**

Parent-Child Dynamics (1 of 2)



Kindergarten Spring Parent Questionnaire. Students from Private and Public Schools

Category	Unweighted, No Controls	Weighted, No Controls	Weighted, Control for Race / Ethnicity	Weighted, Control for Parental Education	Weighted, Control for Parent Expectations
<i>Parental Feelings/ Parent-Child Dynamics</i>					
Warm, Close Time Together	F**	F**	F**	F**	F**
Child Likes Me	F**	F**	F**	F**	F**
Always Show Child Love	F**	F**	F**	F**	F**
Express Affection	F**	F**	F**	F**	F**
Sacrifice to Meet Child's Needs	F**	.	F**	F**	.
Too Busy to Play With Child	.	.	.	.	F**

Parent-Child Dynamics (2 of 2)



Kindergarten Spring Parent Questionnaire. Students from Private and Public Schools

Category	Unweighted, No Controls	Weighted, No Controls	Weighted, Control for Race / Ethnicity	Weighted, Control for Parental Education	Weighted, Control for Parent Expectations
<i>Parental Feelings/ Parent-Child Dynamics</i>					
Often Feel Angry With Child	M**	M**	M**	M**	M**
Child Harder to Care for	M**	M**	M**	M**	M**
Being Parent Harder than Expect	M**	M**	M**	M**	M**
Child Does Things that Bother Me	M**	M**	M**	M**	M**
More Work than Pleasure	M**	.	M**	M**	M**

Child Discipline



Kindergarten Spring Parent Questionnaire. Students from Private and Public Schools

Category	Unweighted No Controls	Weighted, No Controls	Weighted, Control for Race / Ethnicity	Weighted, Control for Parental Education	Weighted, Control for Parent Expectations
<i>Rules</i>					
TV Rule How Late Watch TV	M**	M**	M**	M**	M**
Rules for Hours of Watch TV	M**	M**	M**	M**	M**
Go to Bed Same Time Each Night	.	.	.	.	M*
<i>Discipline</i>					
Response to Hit...Discuss What Child did Wrong	F**	F**	F**	F**	F**
Response to Hit...Make Child do Some Chores	F*	F*	F*	F*	F*
Frequency Spanked Child Last Week	M**	M**	M**	M**	M**
Response to Hit... Spank Child	M**	M**	M**	M**	M**
Response to Hit...Have Child Take Time Out	M**	M**	M**	M**	M**
Response to Hit...Make Child Apologize	M**	M**	M**	M**	M**
Response to Hit...Take Way A Privilege	M**	M**	M**	M**	M**
Response to Hit...Yell at Child	M**	M**	M**	M**	M**

Persisting Gender Stereotypes



- The evidence presented points to strong, compelling patterns of gender inequality in performance and in parent and teacher ratings.
- This evidence is not causal: There are no data available that measures how parents of a boy would treat a girl or vice versa.
- One study that might make this sort of comparison possible is a twin study.
- However, these trends are still strong evidence of early gender socialization behaviors at a very young age that could have enduring and magnified effects for children's academic and occupational futures.