

Appendix: Supplemental Tables

Supplemental Table 1: Odds Ratios from Logistic Regression Analyses Predicting Reading and Mathematics Difficulties (Lowest 15%), ECLS-K: 2011 Data, Spring of First Grade

	Reading Difficulties		Mathematics Difficulties	
	Model 1	Model 2	Model 1	Model 2
Executive Functioning Deficits (Spring Kindergarten)				
Working memory deficits	2.28 *	1.91 *	2.88 *	2.49 *
Cognitive flexibility deficits	1.24 +	1.16	1.58 *	1.51 *
Prior Learning Difficulties (Spring Kindergarten)				
Reading difficulties	10.13 *	8.25 *	3.25 *	2.68 *
Mathematics difficulties	3.56 *	2.93 *	10.73 *	8.63 *
Socio-demographics				
Male		1.3 *		0.92
Black		0.91		1.37 *
Hispanic		1.3 *		1.03
Asian		0.71 *		0.61 *
Other race		1.14		1.06
Family SES		0.82 *		0.82 *
Poverty		1.17 *		1.04
Age in fall kindergarten		1.09 *		1
Prior Behavioral Functioning (Spring Kindergarten)				
Behavioral self-regulation		0.65 *		0.63 *
Externalizing problem behaviors		0.96		0.92 *
Internalizing problem behaviors		1.07 *		1.03
Governmental Assistance, Childcare				
Food stamps (12 months), Spring Kindergarten		1.07		1.02
WIC when pregnant		1.08		1.09
WIC as an infant or toddler		1.09		1.02
Regular center care program		0.94		0.98
Temporary assistance		1.10		1.09

Note: Executive functioning deficit, learning difficulties defined as scoring in the lowest 15% of the respective measure's distribution; WIC= Special Supplemental Nutrition Assistance Program for Women, Infants, and Children. All continuous variables have been standardized with $M = 0$, $SD = 1$. * $p < .05$, ** $p < .01$, *** $p < .001$.

Supplemental Table 2: Odds Ratios from Logistic Regression Analyses Predicting Reading and Mathematics Difficulties (Lowest 25%), ECLS-K: 2011 Data, Spring of First Grade

	<i>Reading difficulties</i>		<i>Mathematics difficulties</i>	
	<i>Model 1</i>	<i>Model 2</i>	<i>Model 1</i>	<i>Model 2</i>
Executive Functioning Deficits (Spring Kindergarten)				
Working memory deficits	1.98 *	1.73 *	2.49 *	2.2 *
Cognitive flexibility deficits	1.18 *	1.11 +	1.47 *	1.39 *
Prior Learning Difficulties (Spring Kindergarten)				
Reading difficulties	8.75 *	7.53 *	2.94 *	2.43 *
Mathematics difficulties	2.74 *	2.27 *	9.69 *	7.88 *
Socio-demographics				
Male		1.23 *		0.81 *
Black		0.87		1.57 *
Hispanic		1.15 +		1.21 *
Asian		0.58 *		0.73 *
Other race		1.01		1.28 *
Family SES		0.82 *		0.8 *
Poverty		1.21 *		1.11
Age in fall kindergarten		1.11 *		0.98
Prior Behavioral Difficulties (Spring Kindergarten)				
Behavioral self-regulation		0.69 *		0.68 *
Externalizing problem behaviors		0.99		0.93 *
Internalizing problem behaviors		1.04		1.05
Governmental Assistance, Childcare				
Food stamps (12 months), spring Kindergarten		1.01		1.03
WIC when pregnant		1.10		1.01
WIC as an infant or toddler		1.06		1.08
Regular center care program		0.91		1.00
Temporary assistance		1.03		1.05

Note: Executive functioning deficit, learning difficulties defined as scoring in the lowest 25% of the respective measure's distribution; WIC= Special Supplemental Nutrition Assistance Program for Women, Infants, and Children. All continuous variables have been standardized with $M = 0$, $SD = 1$. + $p \leq .1$; * $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$.

Supplemental Table 3. OLS Regression, Executive Function and Reading and Mathematics Achievement (Continuous Variables), ECLS-K: 2011 Data

	Reading Test IRT Score, First Grade		Mathematics Test IRT Score, First Grade	
	Model 1	Model 2	Model 1	Model 2
Executive Function (Spring Kindergarten)				
Working memory	0.09 *	0.07 *	0.08 *	0.07 *
Cognitive flexibility	0.02 *	0.01 *	0.04 *	0.04 *
Prior Academic Achievement (Spring Kindergarten)				
Reading achievement	0.59 *	0.55 *	0.08 *	0.07 *
Mathematics achievement	0.2 *	0.18 *	0.7 *	0.66 *
Socio-demographics				
Male		-0.07 *		0.09 *
Black		-0.01		-0.16 *
Hispanic		-0.06 *		-0.09 *
Asian		0		0
Other race		-0.01		-0.06 *
Family SES		0.02 *		0.02 *
Poverty		-0.05 *		-0.02
Age in fall kindergarten		-0.04 *		-0.02 *
Prior Behavioral Functioning (Spring Kindergarten)				
Behavioral self-regulation		0.08 *		0.07 *
Externalizing problem behaviors		0.01		0.02 *
Internalizing problem behaviors		-0.01 *		0
Governmental Assistance, Childcare				
Food stamps (12 months), Spring Kindergarten		-0.02		0.00
WIC when pregnant		-0.02		-0.02
WIC as an infant or toddler		0.00		-0.01
Regular center care program		0.01		0.00
Temporary assistance		0.01		-0.03
R^2	0.64	0.65	0.69	0.70
Adjusted R^2	0.64	0.65	0.69	0.70

Note: WIC= Special Supplemental Nutrition Assistance Program for Women, Infants, and Children. All continuous variables have been standardized with $M = 0$, $SD = 1$. * $p < .05$, ** $p < .01$, *** $p < .001$.

Supplemental Table 4. Dominance Analysis Using Nagelkerke's Pseudo R^2 with 15% Cutoff

<i>Criterion Variables</i>		<i>Subset Model</i>	<i>Pseudo R²</i>	<i>Additional Contribution</i>	
				<i>Working Memory Deficit</i>	<i>Cognitive Flexibility Deficit</i>
Model 1	Reading difficulties	All other predictors except deficits in executive function	0.418	0.016	0.001
	Mathematics difficulties	All other predictors except deficits in executive function	0.449	0.022	0.004
Model 2	Reading difficulties	All other predictors except deficits in executive function	0.461	0.009	0.001
	Mathematics difficulties	All other predictors except deficits in executive function	0.483	0.016	0.003

Supplemental Table 5. Dominance Analysis Using Nagelkerke's Pseudo R² with 25% Cutoff

<i>Criterion Variables</i>		<i>Subset Model</i>	<i>Pseudo R²</i>	<i>Additional Contribution</i>	
				<i>Working Memory Deficit</i>	<i>Cognitive Flexibility Deficit</i>
Model 1	Reading difficulties	All other predictors except deficits in executive function	0.415	0.012	0.001
	Mathematics difficulties	All other predictors except deficits in executive function	0.449	0.022	0.004
Model 2	Reading difficulties	All other predictors except deficits in executive function	0.457	0.007	0.001
	Mathematics difficulties	All other predictors except deficits in executive function	0.497	0.013	0.003

Supplemental Table 6. Dominance Analysis for Regression Analysis Using Pseudo R² with Continuous Variables

	Criterion Variables	Subset Model	Pseudo R ²	Additional Contribution	
				Working Memory Deficit	Cognitive Flexibility Deficit
Model 1	Reading difficulties	All other predictors except deficits in executive function	0.634	0.006	0.001
	Mathematics difficulties	All other predictors except deficits in executive function	0.681	0.005	0.002
Model 2	Reading difficulties	All other predictors except deficits in executive function	0.649	0.004	0.000
	Mathematics difficulties	All other predictors except deficits in executive function	0.693	0.004	0.002

Supplemental Table 7. Correlations Between Children's Continuous Working Memory and Cognitive Flexibility and Reading And Mathematics Achievement, ECLS-K: 2011 Data, Spring of Kindergarten.

	1.	2.	3.
1. Working memory			
2. Cognitive flexibility	0.30***		
3. Reading achievement	0.51***	0.29***	
4. Mathematics achievement	0.59***	0.37***	0.71***

Note: ***p<.001