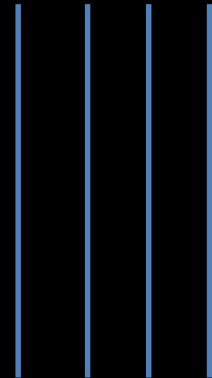


Variation in Children's Reactions to Parental Divorce

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How does divorce affect children?

Children with divorced parents score lower on measures of behavior, achievement, and general well-being, on average, than do children with continuously married parents.

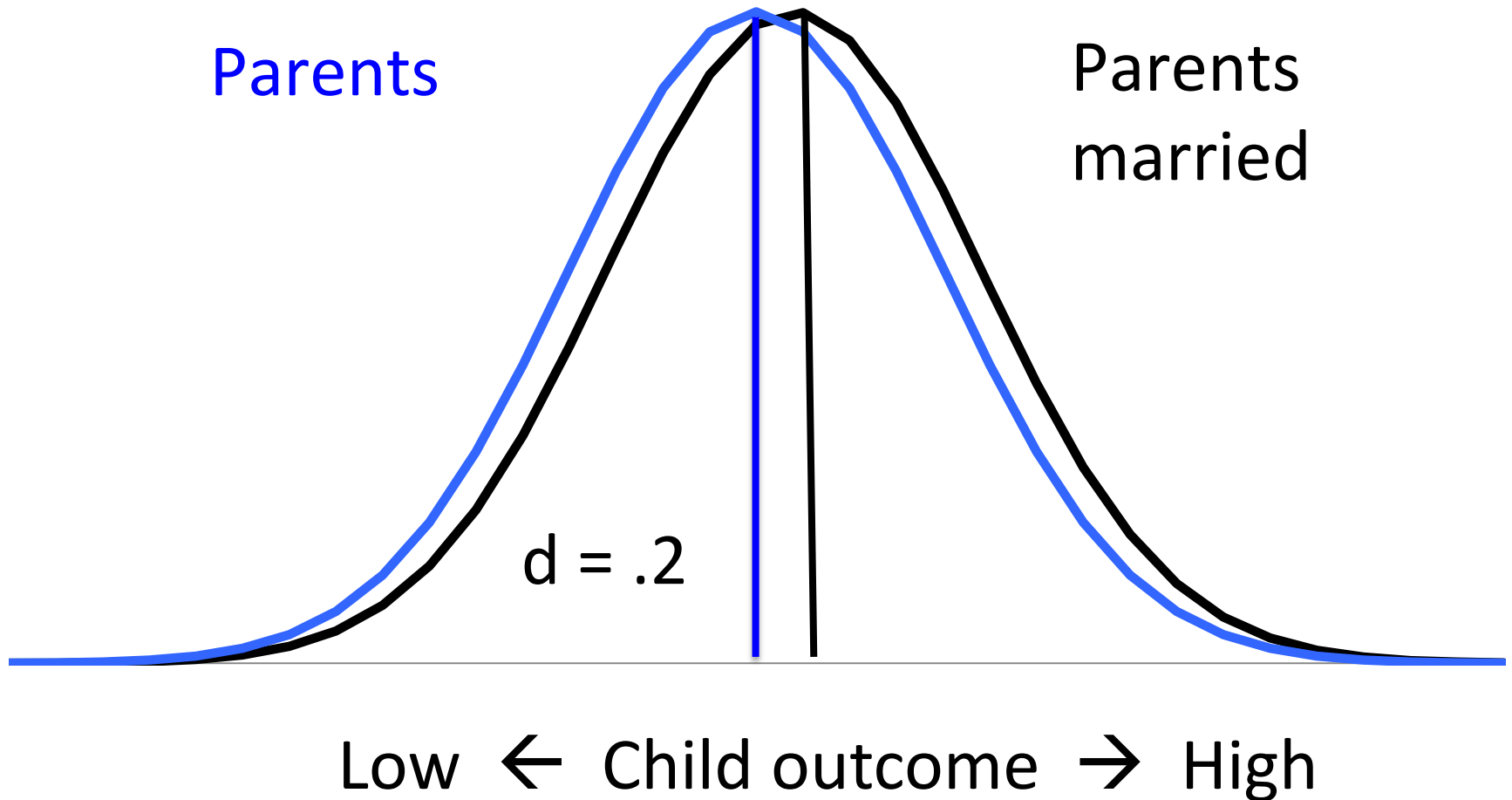
Mean weighted effect sizes from meta-analytic studies

	<u>USA</u>		<u>Non-English countries</u>	
<u>Outcome</u>	<u>d</u>	<u>(N)</u>	<u>d</u>	<u>(N)</u>
Academic	-.16	(39)	-.20	(14)
Behavior	-.22	(40)	-.23	(27)
Emotional	-.21	(41)	-.33	(15)

Source: Amato (2001), Amato & Boyd (2014)

What do differences of this
magnitude look like?

Outcome distributions for children with married and divorced parents



My goal: To investigate
variability in children's reactions
to parental divorce, rather than
mean differences.

Early Childhood Longitudinal Study (ECLS)

- National Center for Education Statistics
- U.S. Department of Education
- Started in 1998-1999
- 21,387 kindergarten students
- 1,280 schools
- Data from children, parents, teachers

Early Childhood Longitudinal Study (ECLS)

Wave I: fall of kindergarten

Wave II: spring of kindergarten

Wave III: fall of 1st grade (not used)

Wave IV: spring of 1st grade

Wave V: spring of 3rd grade

Wave VI: spring of 5th grade

Early Childhood Longitudinal Study (ECLS)

Sample restricted to 11,003 children living with two married, biological parents in Wave I

0 = parents still married

1 = parents separated or divorced between waves

N = 972 children with separated or divorced parents

Behavioral outcomes

Positive classroom behavior (6 items)

Keeps belongings organized

Shows eagerness to learn new things

Pays attention well

Persists in completing tasks

Alpha (mean across waves) = .90

Behavioral outcomes

Self-Control (4 items)

Respect for property of others

Controlling temper

Accepting peer ideas

Responding appropriately to peer pressure

Alpha (mean across waves) = .79

Behavioral outcomes

Interpersonal competence (5 items)

Making friends

Getting along with others who are different

Comforting or helping other children

Expressing views in positive ways

Sensitivity to the feelings of others

Alpha (mean across waves) = .88

Behavioral outcomes

Externalizing problems (5 items)

Arguing

Fighting

Getting angry

Acting impulsively

Disturbing ongoing activities

Alpha (mean across waves) = .89

Behavioral outcomes

Internalizing problems (4 items)

Anxiety

Loneliness

Low self-esteem

Sadness

Alpha (mean across waves) = .77

Factor Analysis of Child Outcomes

Variables	Factor 1: Behavior
Positive classroom behavior	.75
Self-control	.88
Interpersonal	.85
Externalizing problems	-.71
Internalizing problems	-.40

55% of total variance

Analysis based on change scores

Time 2 (post-divorce) – Time 1 (pre-divorce)

High score indicates positive behavior

Change score analysis: Two ways of assessing change

	Wave 1	Wave 2	Absolute	Relative
Child 1 score	3	4	+1	+0.5
Child 2 score	3	3	0	-0.5
Child 3 score	3	2	-1	-1.5
Overall mean	3	3.5		

Change scores are basis of fixed effects models.

$$Y_{i2} - Y_{i1}$$

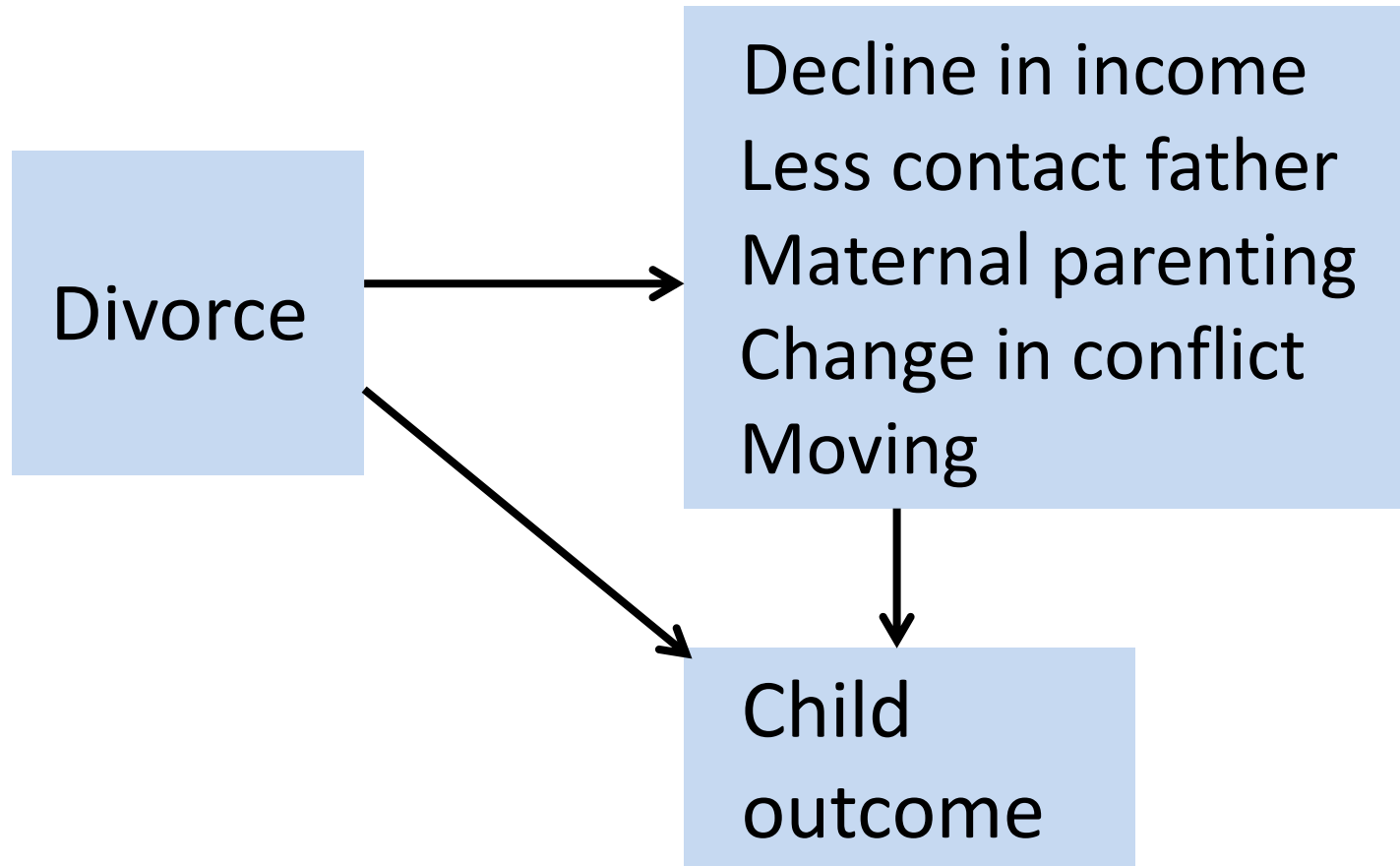
$$(Y_{i2} = \mu_2 + \beta \mathbf{x}_{i2} + \varepsilon_{i2} + \gamma \mathbf{z}_i + \alpha_i)$$

$$- (Y_{i1} = \mu_1 + \beta \mathbf{x}_{i1} + \varepsilon_{i1} + \gamma \mathbf{z}_i + \alpha_i)$$

$$= \Delta\mu + \beta \Delta \mathbf{x}_i + \Delta\varepsilon_i$$

Blue = stable over time

What time-varying variables should we control for?



We don't need to control for stable variables.

We don't want to control for time-varying variables affected by divorce.

Although imperfect, simple change scores are a reasonable way of looking at the effects of divorce.

Behavior Change Scores

	Absolute	Relative
Mean	-.16	-.12
Standard deviation	.85	.86
Range	-3.38 / +2.5	-3.65 / +2.49
% Negative	55	55
% Positive	45	45

Mean Behavior Change Scores by Timing of Divorce

Timing of divorce	Absolute	Relative	N of cases
K1 – K2	-.15*	-.29***	167
K2 - Grade 1	-.22***	-.07	225
Grade 1 – Grade 3	-.16**	-.11*	337
Grade 3 – Grade 5	-.09	-.07	208
Overall	-.16***	-.12***	937

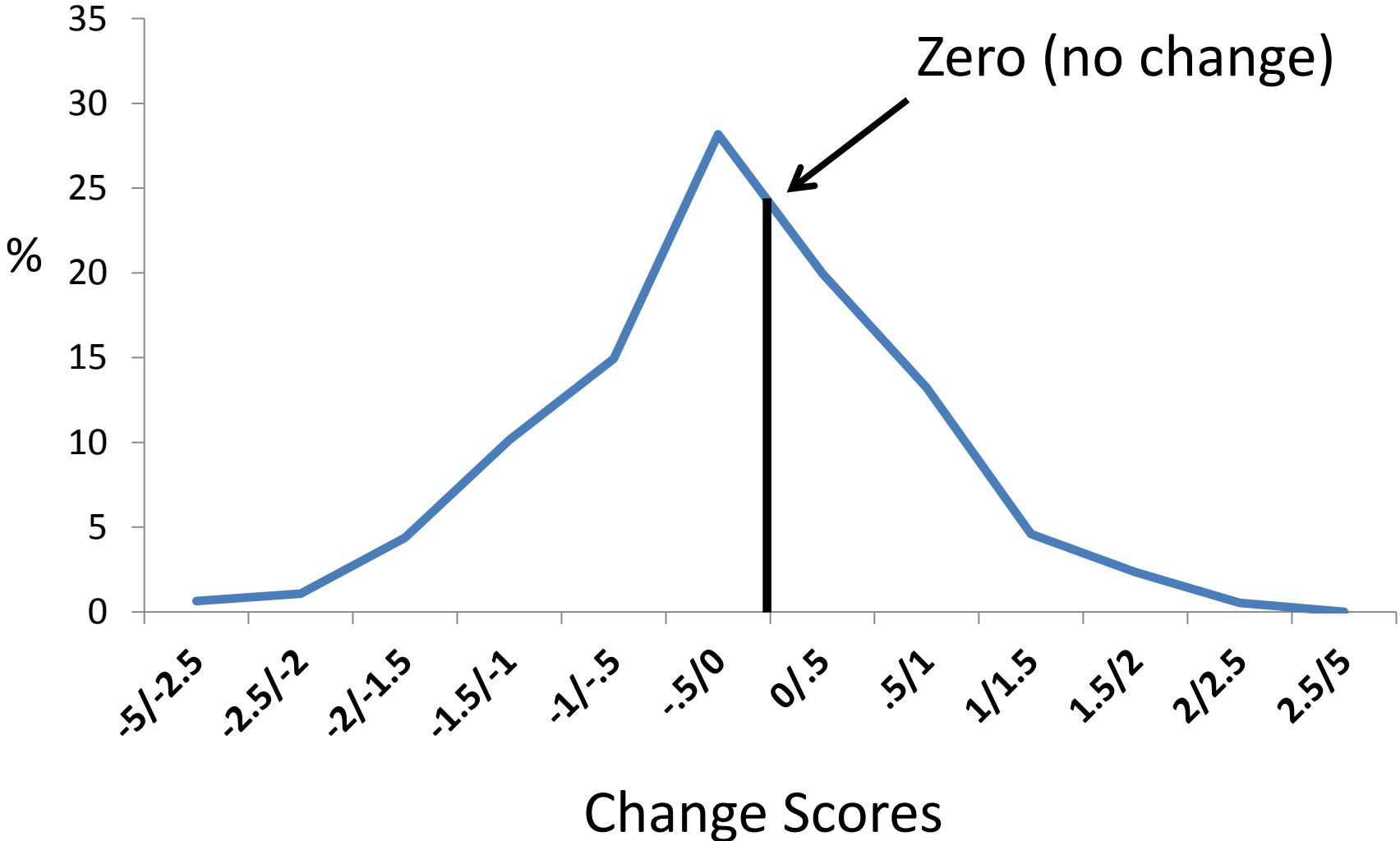
* $p < .05$, ** $p < .01$, *** $p < .001$ (two-tailed)

Mean Behavior Change Scores by Child Gender

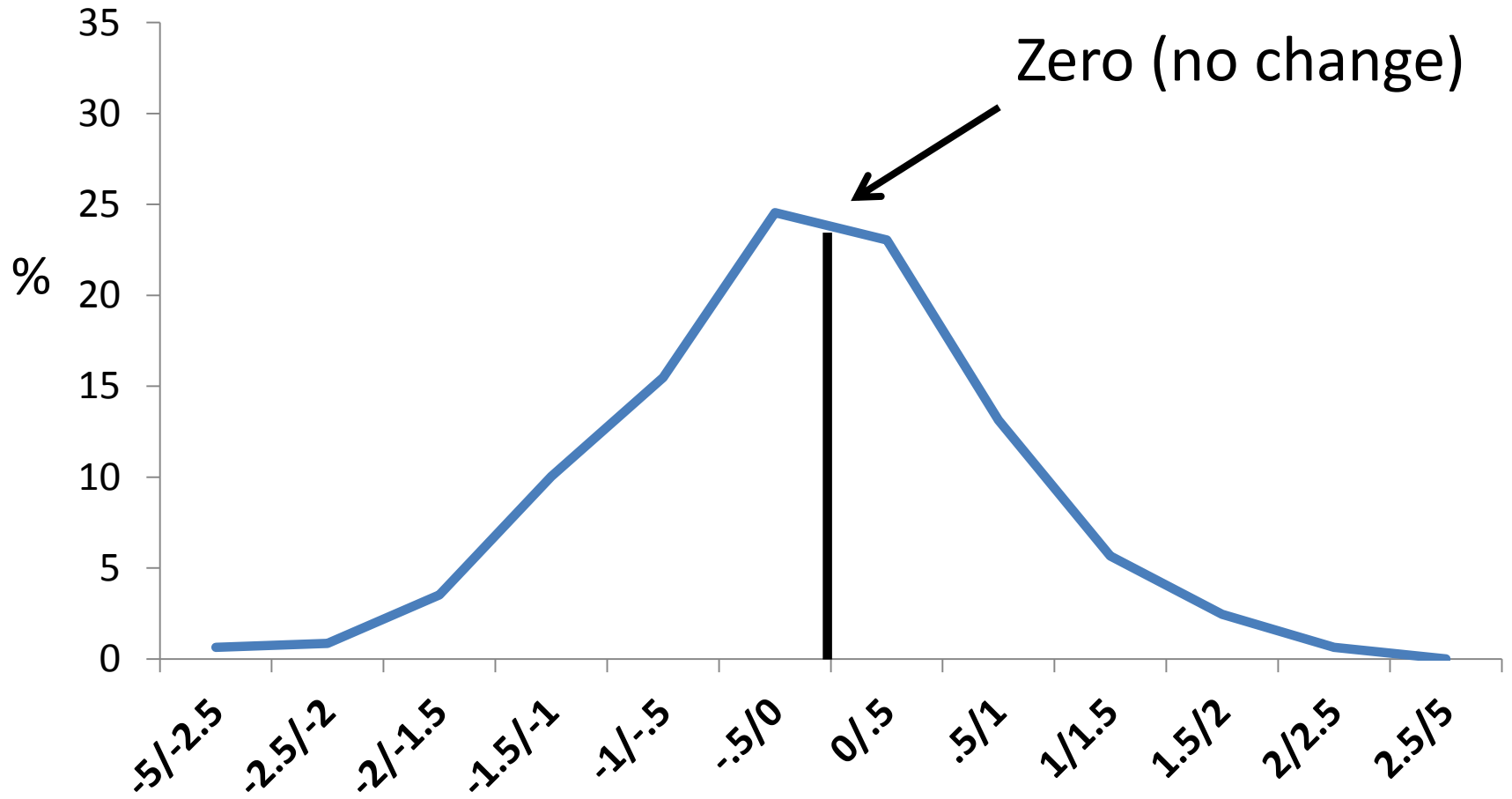
Timing of divorce	Absolute	Relative	N of cases
Girls	-.11**	-.08*	459
Boys	-.20***	-.16***	478
Overall	-.16***	-.12***	937

* $p < .05$, ** $p < .01$, *** $p < .001$ (two-tailed)

Distribution of Absolute Behavior Change Scores Following Divorce



Distribution of Relative Behavior Change Scores Following Divorce



Reliability of the Behavior Problem Composite Score

$$\text{Reliability} = \frac{\sum w_i^2 r_i + \sum \sum w_i w_j r_{ij}}{\sum w_i^2 + \sum \sum w_i w_j r_{ij}}$$

w = weight

r_i = reliability of component i

r_{ij} = correlation between components i and j

Standard Error of Measurement (SEM)

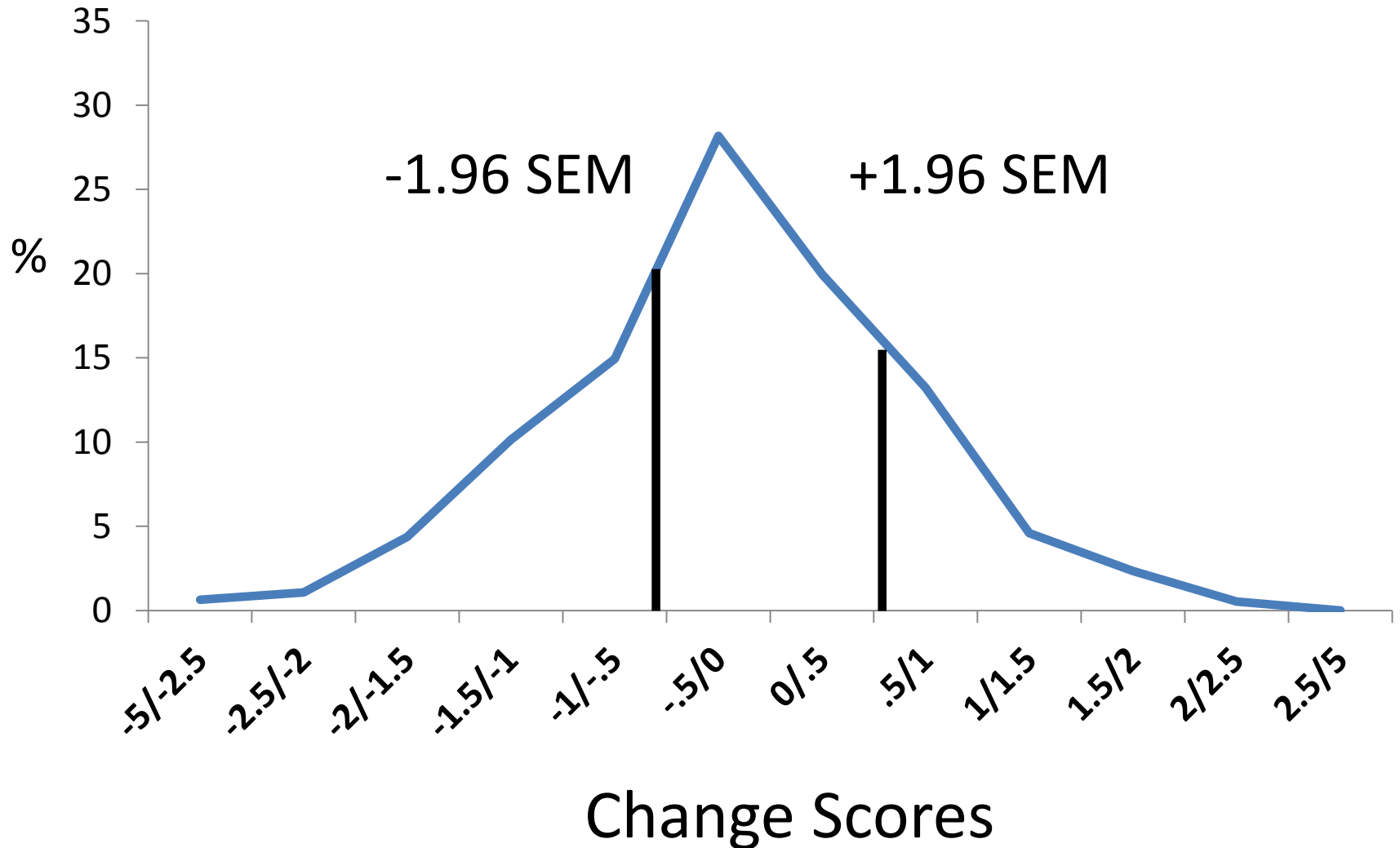
$$SEM = S_x \sqrt{1 - r_{xx}} = 1 \sqrt{1 - .92} = .28$$

S_x = Standard deviation of the composite

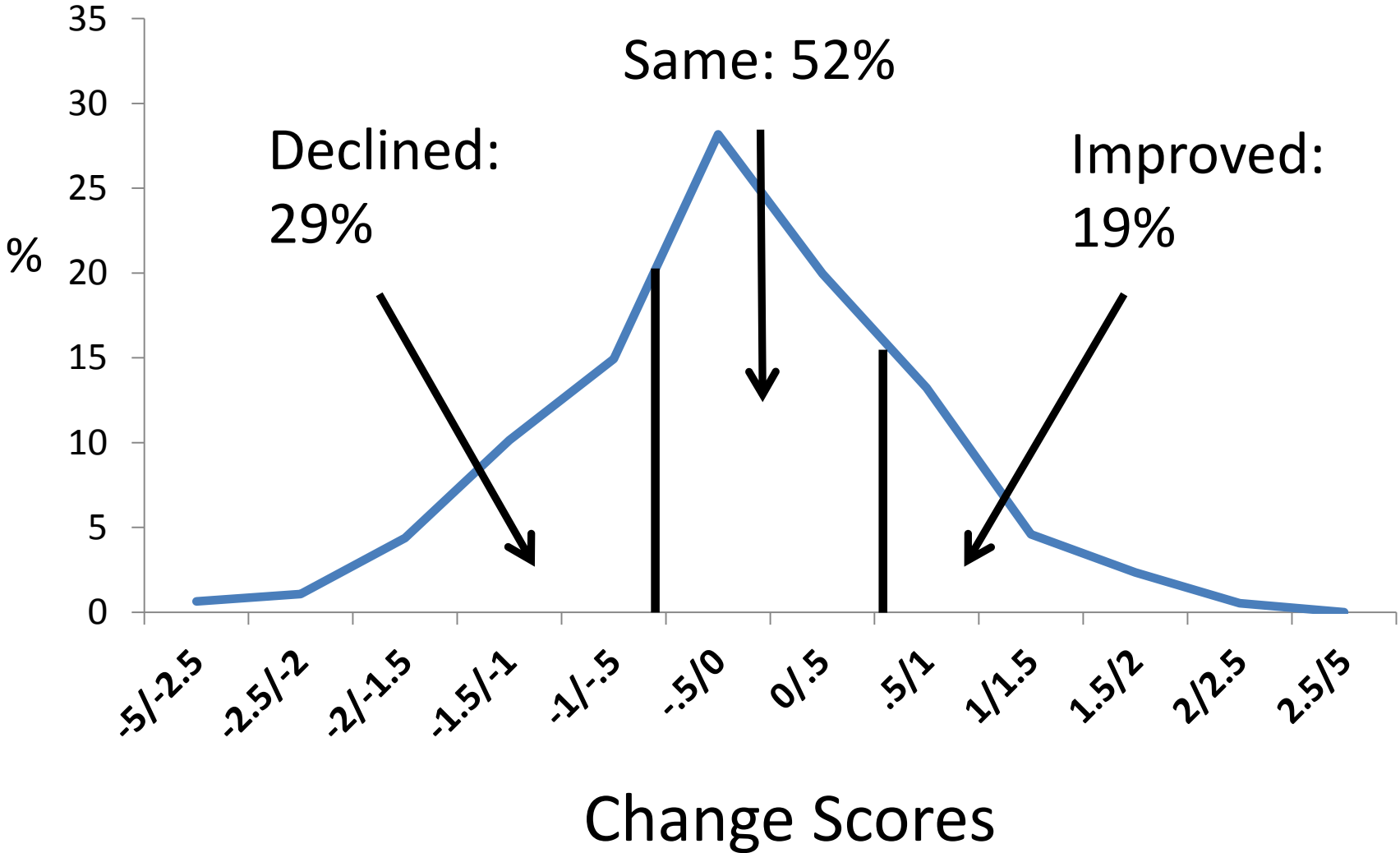
r_{xx} = Reliability of the composite

95% CI = Raw score \pm 1 (1.96 SEM)

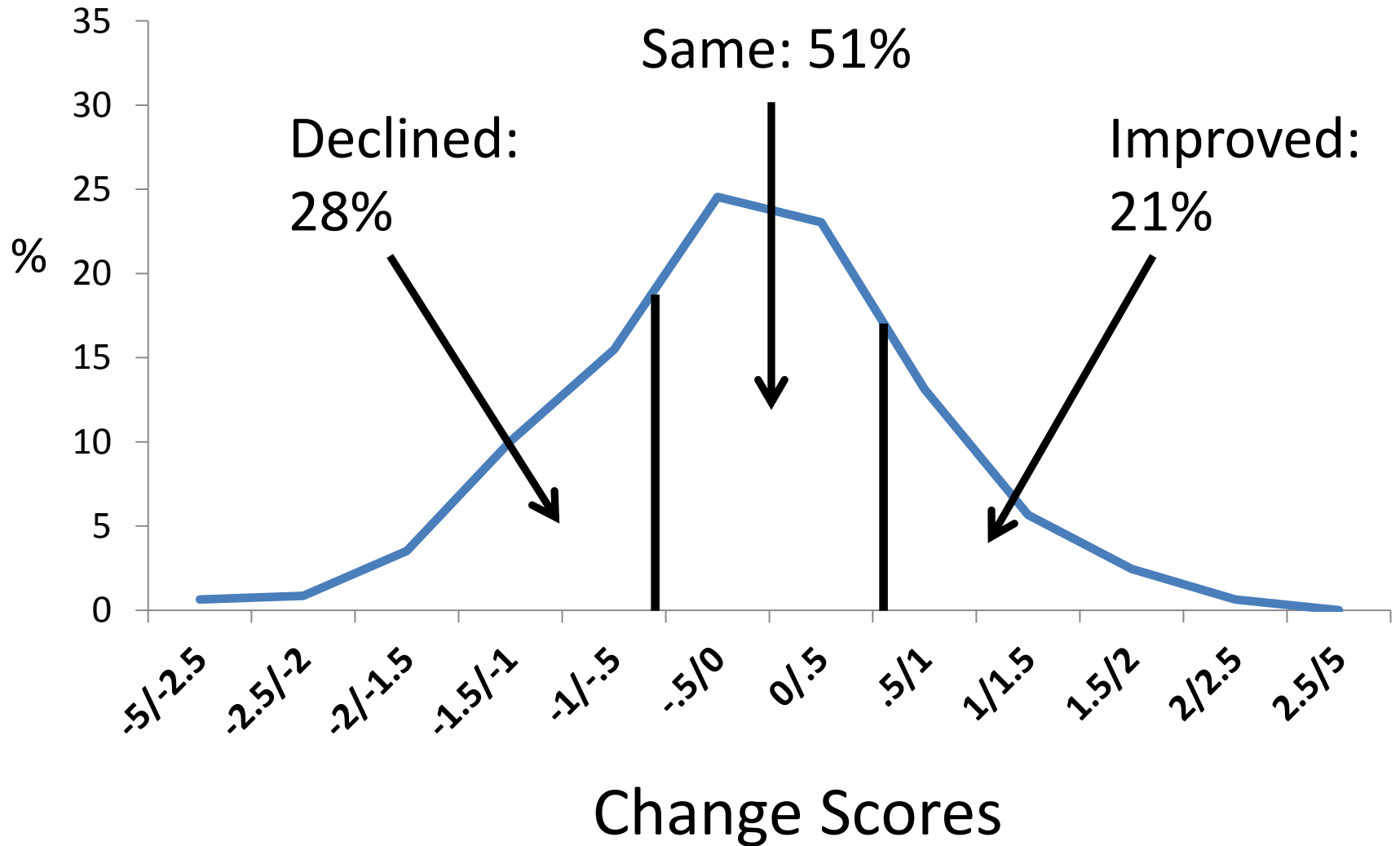
Distribution of Absolute Behavior Change Scores Following Divorce



Distribution of Absolute Behavior Change Scores Following Divorce



Distribution of Relative Behavior Change Scores Following Divorce



Multinomial Regression of Relative Behavior Change on Demographic Variables (decline v. no change)

Variable	B	SE	Z	P
boy	.18	.15	1.15	0.24
age at divorce	-.01	.00	-1.54	0.12
number of sibs	-.03	.07	-0.47	0.63
parent education	-.11	.05	-2.17	0.03
income log	.26	.24	1.07	0.28
suburb	.05	.19	0.28	0.77
small town	.08	.22	0.39	0.69
Catholic	-.19	.26	-0.71	0.47
other religious	-.13	.37	-0.37	0.71
other private	.38	.48	0.80	0.42
black	.28	.27	1.02	0.30
hispanic	-.28	.24	-1.16	0.24
asian	-.90	.66	-1.36	0.17
native american	-.60	.48	-1.26	0.20
mixed race	-.52	.49	-1.07	0.28
midwest	.40	.24	1.67	0.09
south	-.03	.23	-0.15	0.88
west	.53	.26	2.02	0.04

Multinomial Regression of Relative Behavior Change on Demographic Variables (improve v. no change)

Variable	B	SE	Z	P
boy	.00	.17	0.01	0.98
agediv	-.00	.00	-0.67	0.51
number of sibs	.02	.08	0.28	0.78
parent education	.01	.05	0.19	0.85
income log	-.26	.25	-1.02	0.31
suburb	-.27	.21	-1.25	0.21
small town	.28	.24	1.17	0.24
Catholic	.12	.27	0.44	0.66
other religious	.05	.39	0.13	0.89
other private	.34	.53	0.64	0.52
black	-.00	.32	-0.01	0.99
hispanic	-.20	.26	-0.74	0.46
asian	-.19	.57	-0.34	0.74
native american	-1.13	.66	-1.71	0.09
mixed race	-.63	.57	-1.10	0.27
midwest	-.01	.25	-0.03	0.97
south	-.31	.25	-1.24	0.22
west	.05	.29	0.16	0.87

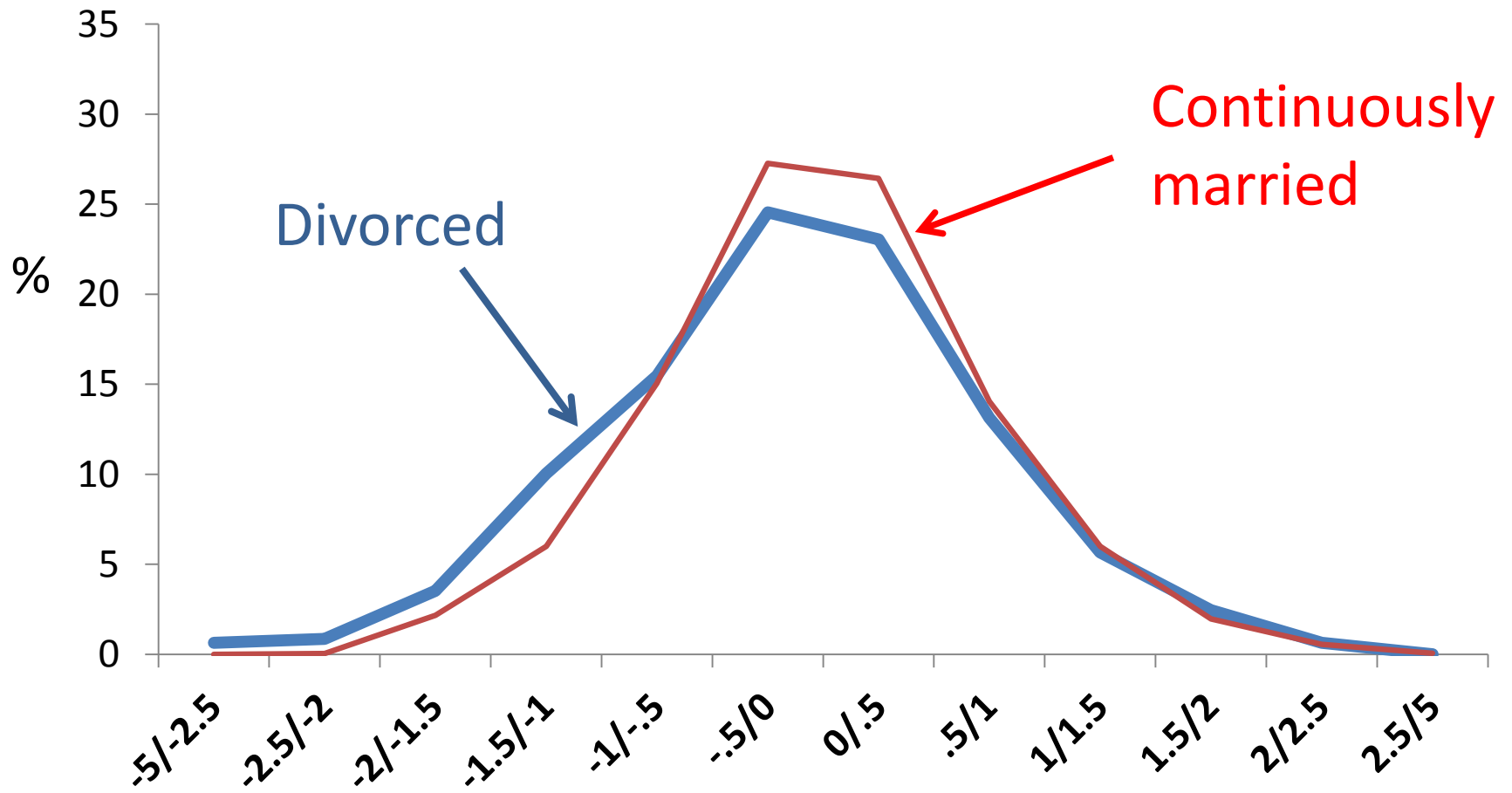
Difficult to predict which children will decline, improve, or stay the same following divorce

Need to dig more deeply into family processes and psychological (perhaps genetic) factors to understand this variation

Change score variance

Across all items, change score variance is 25% higher among children with divorced parents than among children with continuously married parents.

Distribution of Relative Behavior Change Scores



A different approach to understanding variation

Latent Class (Profile) Analysis

Latent Transition Analysis

Latent Transition Analysis

Latent Profile Analysis (LPA) identifies unobserved groups in the data.

Latent Transition Analysis is a longitudinal form of LPA.

Goal: Form latent classes of children (a) pre- and (b) post-divorce based on profile of outcomes.

Calculate transitional probabilities between classes over time.

Latent Transition Analysis

Data from grade 3 and grade 5

N = 357 divorces, 7,091 stable families

Outcomes: reading score

mathematics score

positive classroom behavior

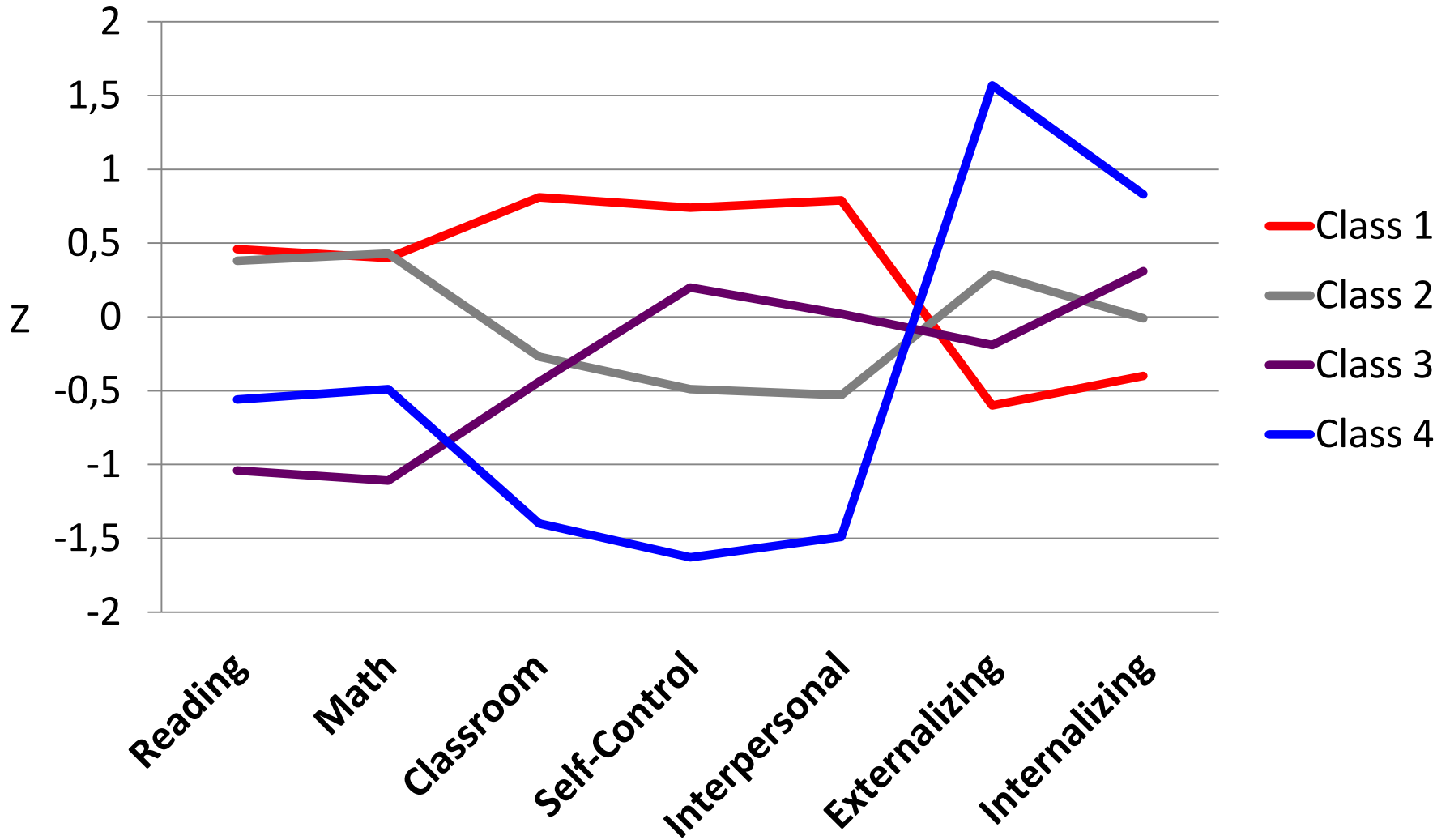
self-control

interpersonal competence

externalizing behavior

internalizing behavior

Four Latent Classes



Four latent classes

Class 1: High academic, positive behavior (44%)

Class 2: Low academic, average behavior (18%)

Class 3: High academic, average behavior (24%)

Class 4: Low academic, negative behavior (14%)

Latent Class Membership at Times 1 and 2 by Divorce

	Time 1		Time 2	
<u>Classes</u>	<u>No divorce</u>	<u>Divorce</u>	<u>No divorce</u>	<u>Divorce</u>
Class 1	.44	.32	.43	.32
Class 2	.18	.22	.19	.23
Class 3	.24	.22	.24	.24
Class 4	.13	.24	.14	.21

Class 1: High academic, positive behavior

Class 2: Low academic, average behavior

Class 3: High academic, average behavior

Class 4: Low academic, negative behavior

Transitional probabilities

	<u>Time 2</u>			
<u>Time 1</u>	<u>Class 1</u>	<u>Class 2</u>	<u>Class 3</u>	<u>Class 4</u>
Class 1	.78	.00	.20	.02
Class 2	.02	.86	.00	.12
Class 3	.32	.00	.56	.12
Class 4	.05	.22	.14	.59

Class 1: High academic, positive behavior

Class 2: Low academic, average behavior

Class 3: High academic, average behavior

Class 4: Low academic, negative behavior

Probability of shifting out of Class 1 (high-high)


	No divorce	Divorce
Stable	.77	.72
Change (decline)	.23	.27

Probability of shifting out of Class 4 (low-low)

	No divorce	Divorce
Stable	.46	.42
Change (improve)	.54	.58

Divorce is followed by a great deal of change, positive as well as negative .

Focusing on mean change obscures the dispersion of outcomes among children following divorce.



Multinomial Regression of Behavior Change on Propensity to Divorce

	Decline v. no change	Improve v. no change	Decline v. Improve
Propensity	5.95*	-0.89	6.84*
Constant	-1.21	-0.80	0.41

$p < .05$