

The Robustness of Indices of Child Well-being

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Child Trends



Goal

- Assess the promise of using a carefully constructed child development framework to develop indices that are robust, even if they are modified slightly in response to social changes or methodological improvements

National Survey of Children's Health (NSCH)

- Developed to provide indicator data for U.S. children <18 for the nation and each state
- Telephone interviews with the most knowledgeable parent
- Primary focus on health, but includes information on a range of child well-being constructs and on the contexts in which children grow up.
- Data on more than 90,000 children from 2003 and also from 2007

Micro Data Indices

- Children's circumstances can be described for each individual child, across multiple developmental domains, and then aggregated.
- Different than macro indices, which are built from data that have already been aggregated.

Index Domains for Children 6-11 and 12-17


- Physical Health
- Psychological Health
- Social Health and Behavior
- Education and Cognitive Development
- Overall Well-Being

Two Micro Indices

- Positive Well-Being
- Negative Well-Being

Two Age Groups for Each Index

- 6-11
- 12-17



An example: how was the positive social health domain constructed for adolescents 12-17?

An Example: Social Health

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An Example: Social Health

- Parent/child relationship
 -
- Activity engagement
 -
 -
 -
 -
- Positive social behaviors
 -
 -
 -
 -

An Example:

Social Health

- Parent/child relationship
 - Communication
- Activity engagement
 - Sports
 - Clubs
 - Organized events
 - Volunteer, service work
- Positive social behaviors
 - Respect for teachers, neighbors
 - Gets along with other children
 - Tries to understand feelings
 - Tries to resolve conflicts

But the actual measures change

Positive cognitive development items

- 2003

- Child reads for pleasure

- 2007

- Child reads for pleasure
- Child cares about doing well in school
- Child does required homework

And response categories can change

Negative social behavior items were the same

- 2003

- Child argues too much
- Child bullies or is cruel or mean to others
- Child is disobedient
- Child is stubborn, sullen, or irritable

- 2007

- Child argues too much
- Child bullies or is cruel or mean to others
- Child is disobedient
- Child is stubborn, sullen, or irritable

But the response categories changed

- 2003 response options
 - Never
 - Sometimes
 - Usually
 - Always
- 2007 response options
 - Never
 - Rarely
 - Sometimes
 - Usually
 - Always

Response Categories

- 2003 response options
 - Never
 - Sometimes
 - Usually
 - Always
- 2007 response options
 - Never
 - Rarely
 - Sometimes
 - Usually
 - Always

Given these differences...

- Can we use micro-indices to track trends, even if the items differ somewhat?

Analyses completed:

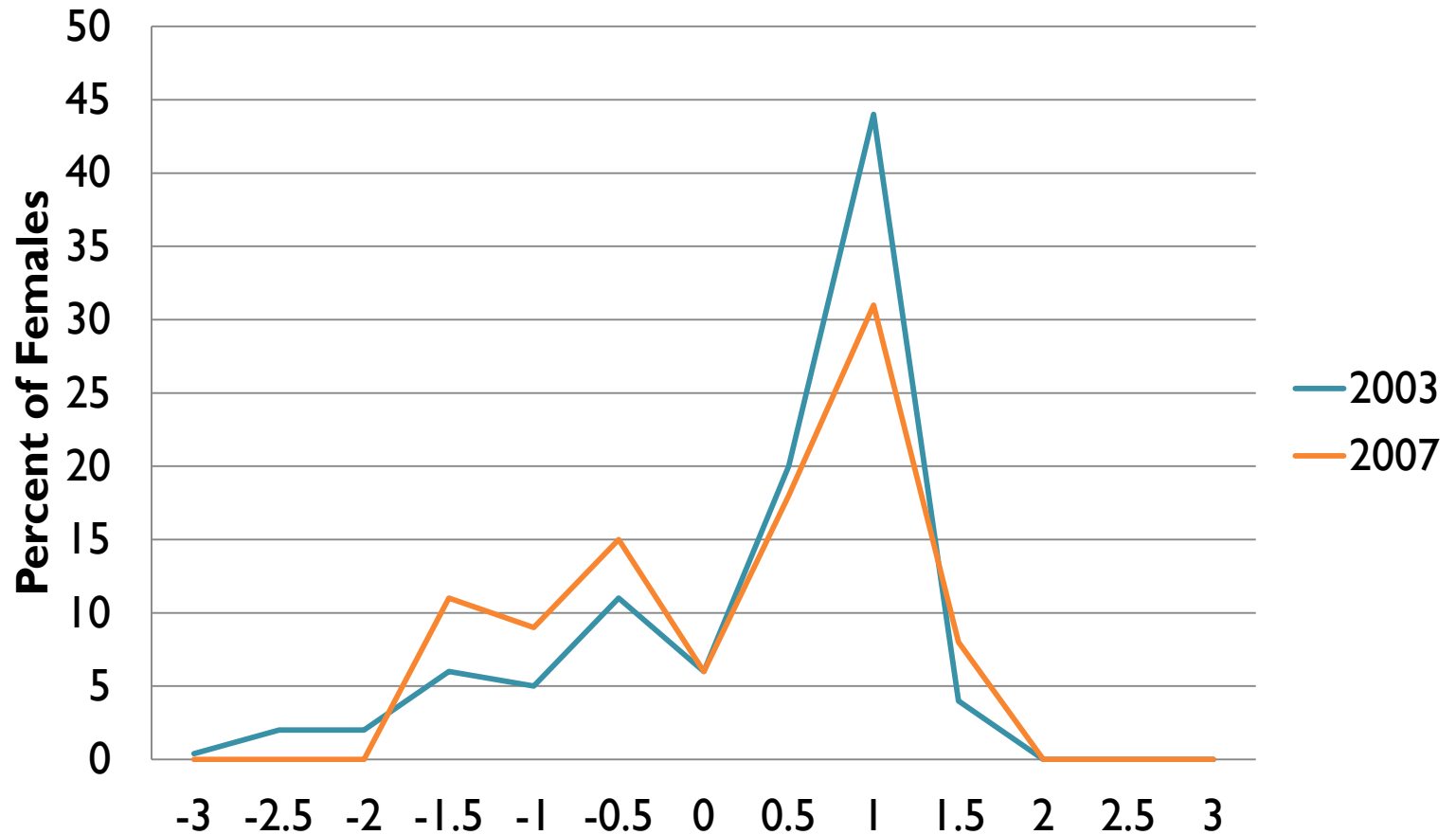
- Coded indices
- Created standardized scores
- Examined distributions by gender & age across 2003 & 2007
- Assessed regressions for indices by family structure, poverty, child age, parent education, and child gender
- Assessed correlations for the indices across 2003 & 2007
- Assessed regressions for the indices and for variables measured the same in both years and compared 2003 to 2007
- Compared rankings on child well-being for states for 2003 and 2007
- Conclusions

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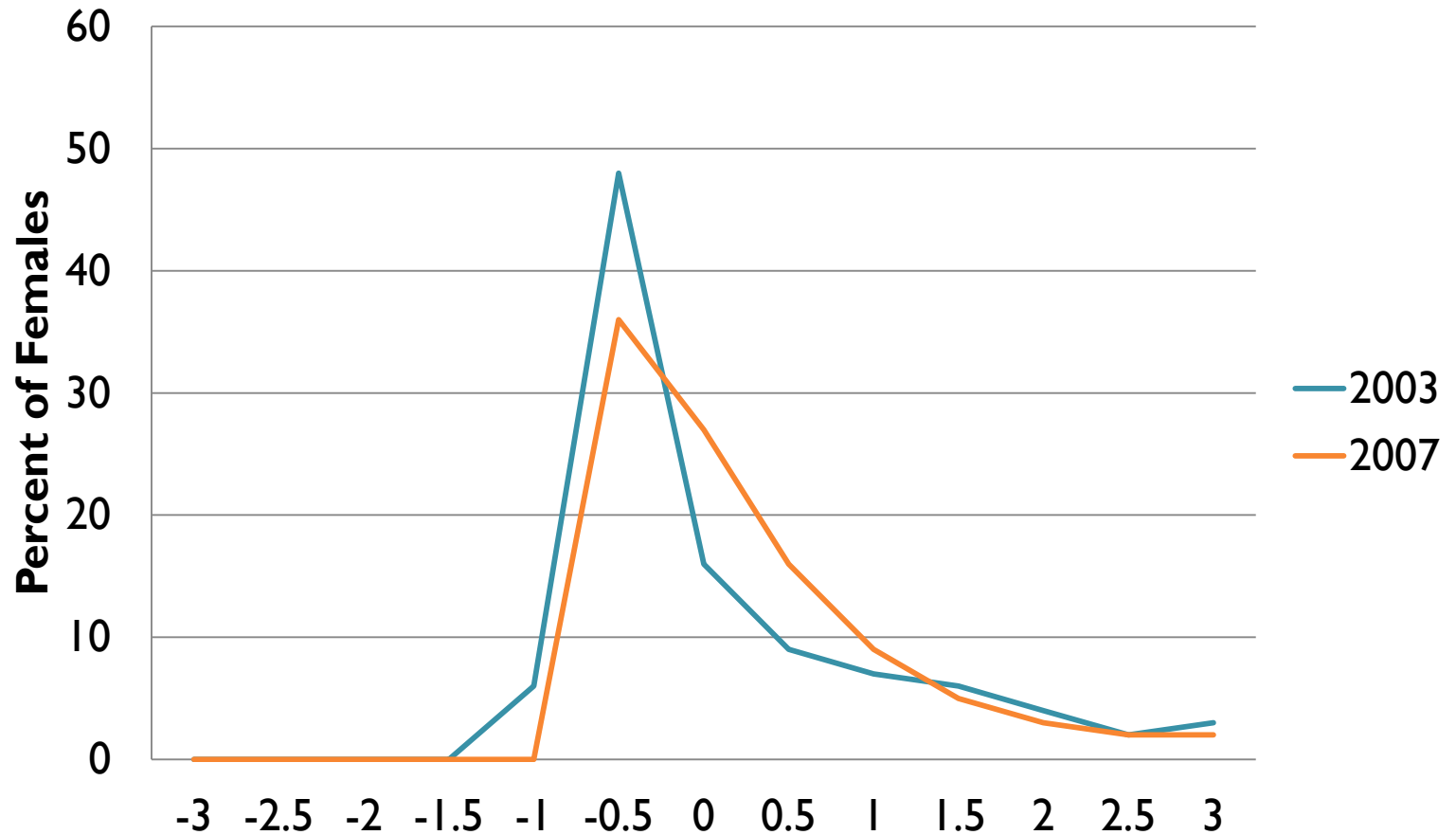
Distributions for girls

Positive Index



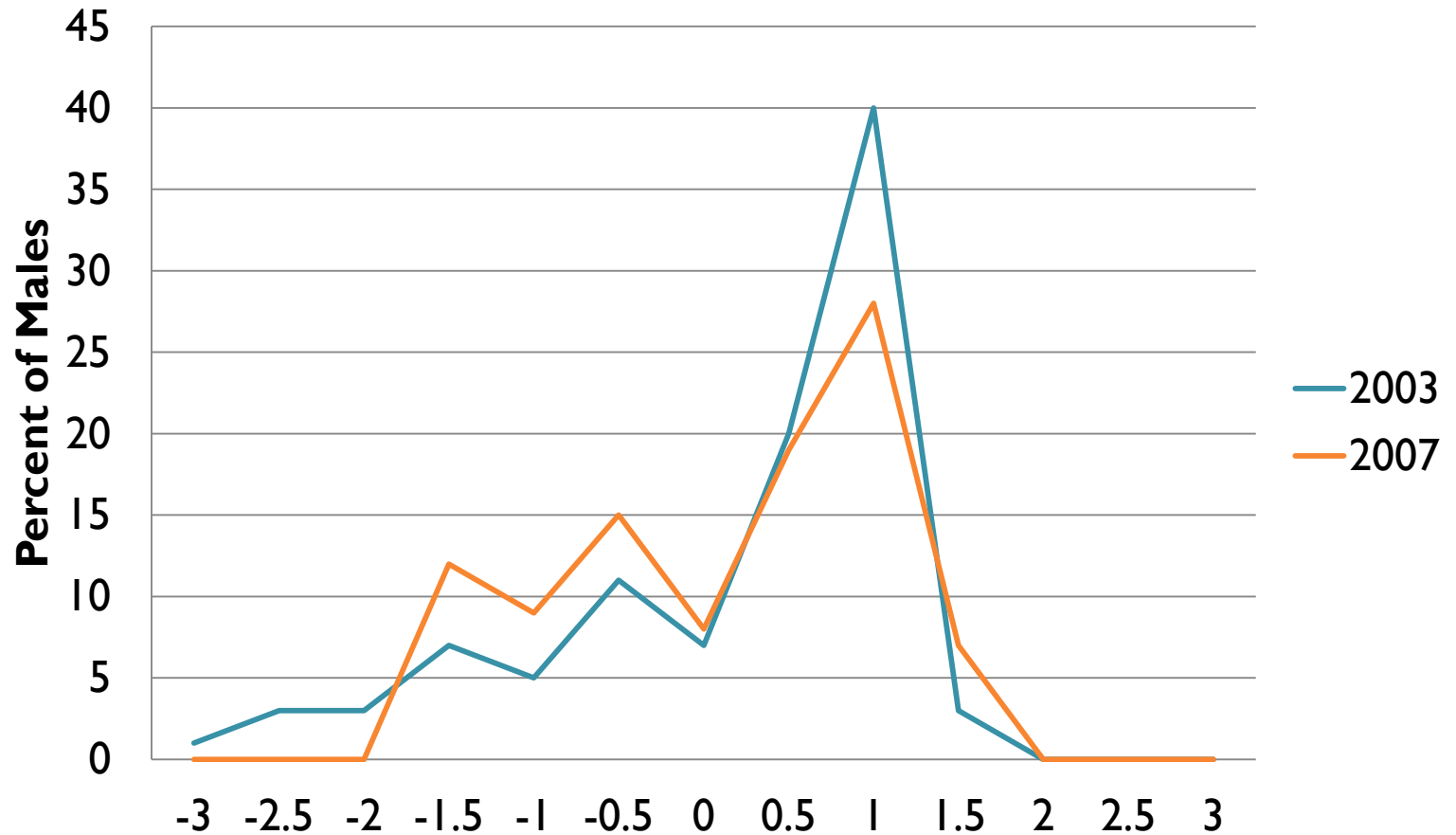
Distributions for girls

Negative Index



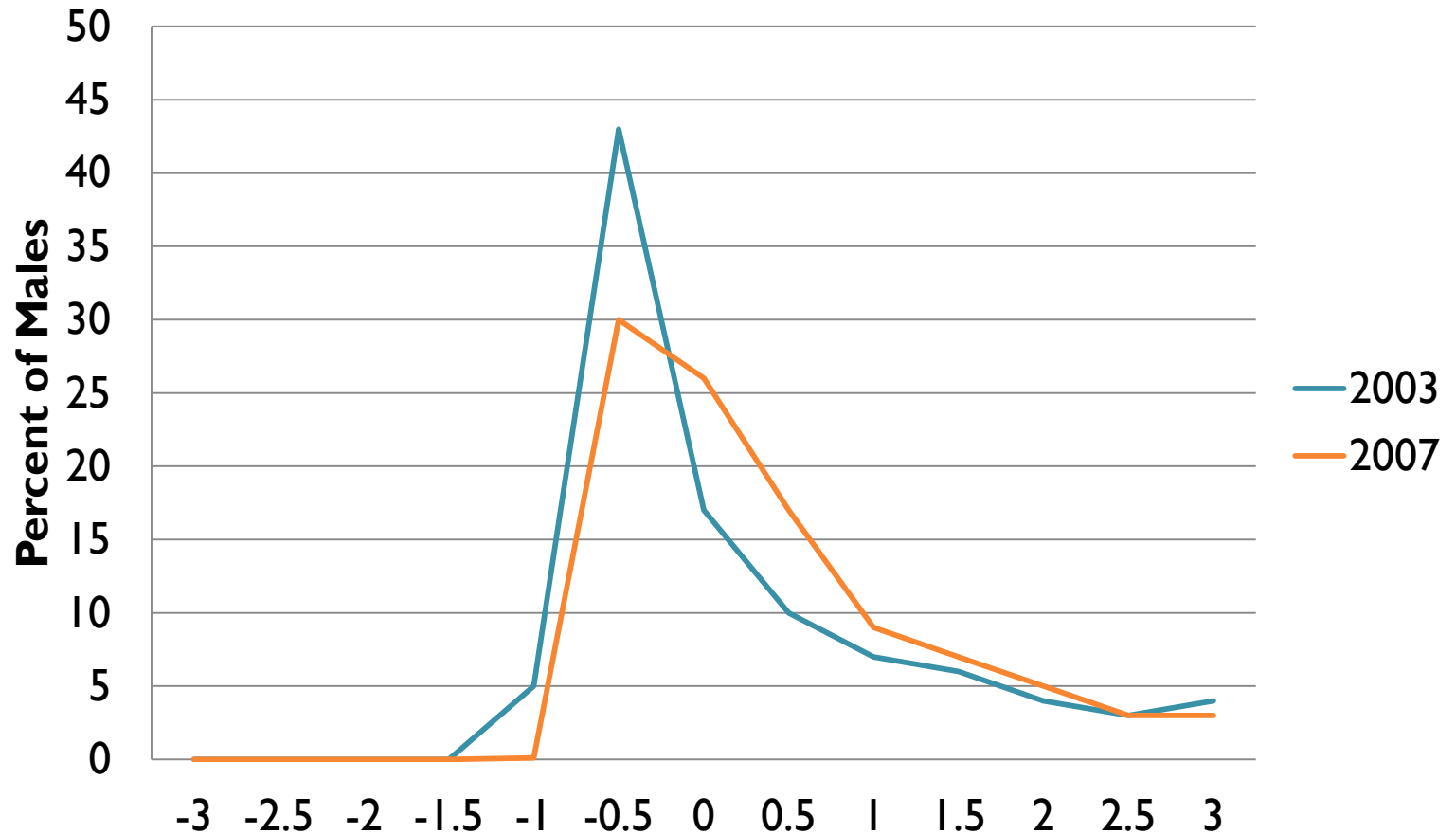
Distributions for boys

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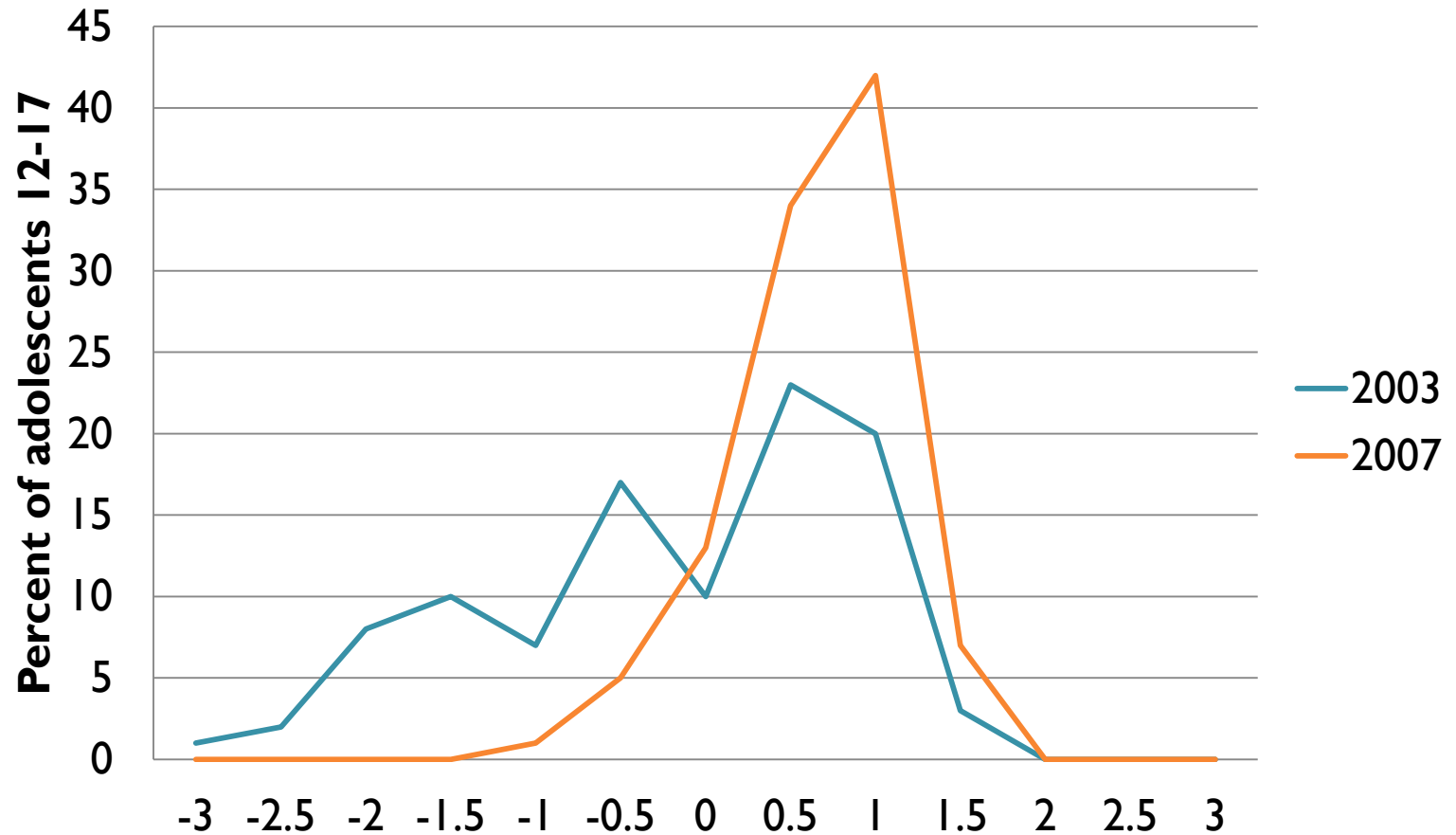
Distributions for boys

Negative Index



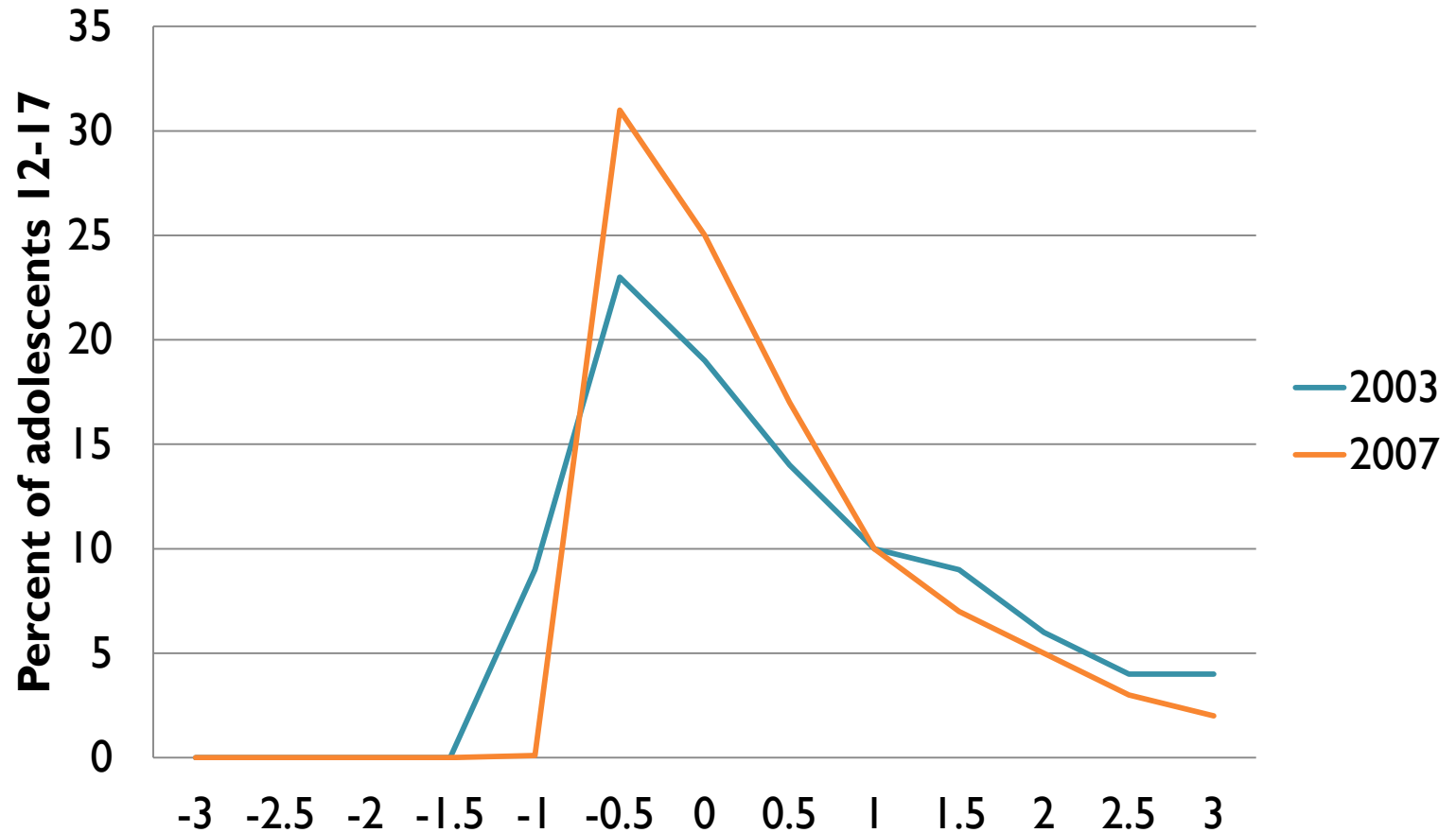
Distributions for adolescents 12-17

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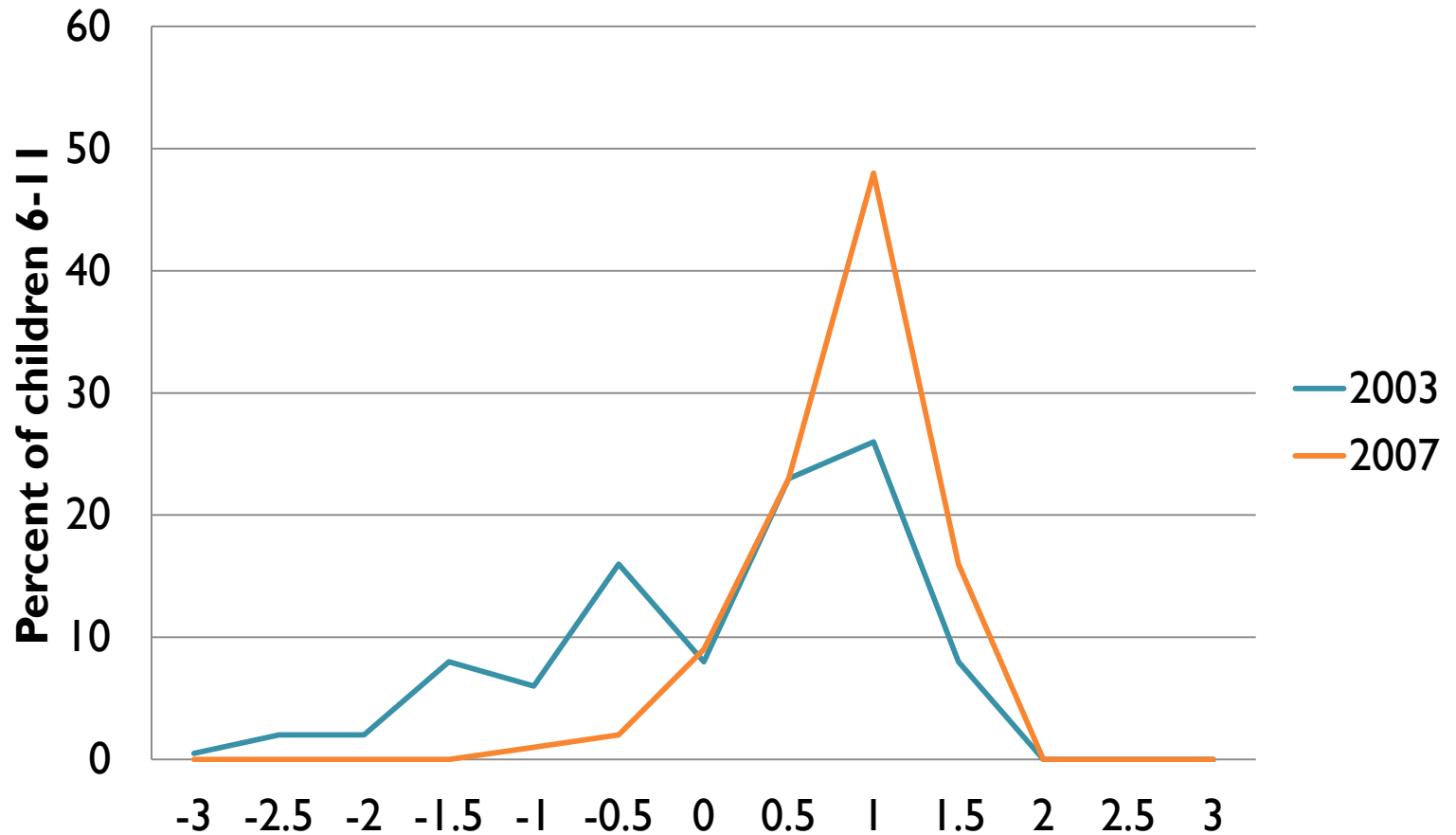
Distributions for adolescents 12-17

Negative Index



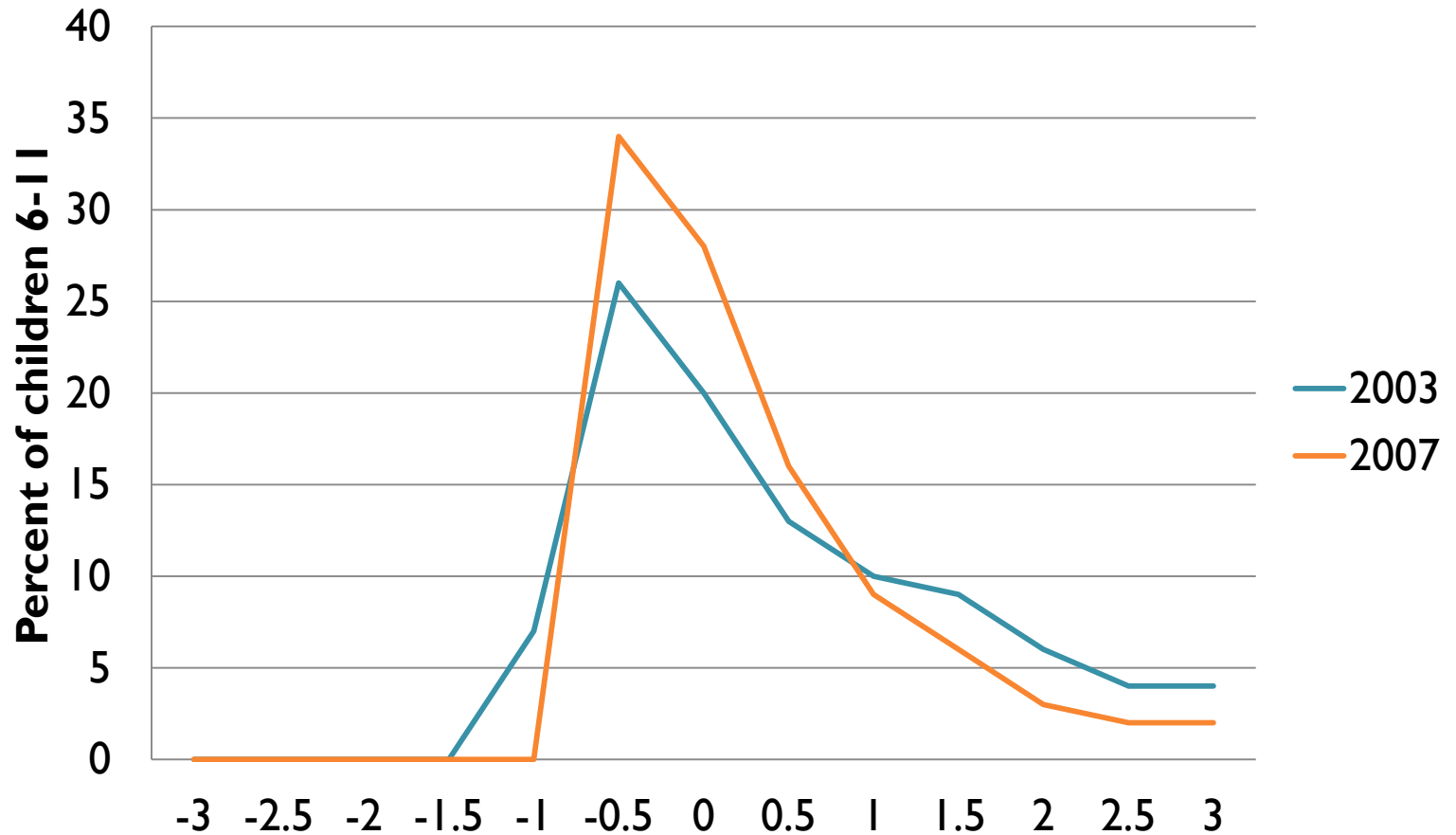
Distributions for children 6-11

Positive Index



Distributions for children 6-11

Negative Index



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Compare Regression Coefficients

Negative index for physical health, children aged 6-17

Variable	2003 Beta coefficient	2007 Beta coefficient	Within confidence interval for 2003?
Family Structure	.05	.07	No
Poverty	-.04	-.02	No
Child Age	.03	.02	No
Parent Education	-.08	-.03	No
Child Gender	-.05	-.04	Yes

Compare Regression Coefficients

Negative index for psychological health,
children aged 6-17

Variable	2003 Beta coefficient	2007 Beta coefficient	Within confidence interval for 2003?
Family Structure	.08	.08	Yes
Poverty	-.03	-.03	Yes
Child Age	.04	.04	Yes
Parent Education	-.01	-.05	No
Child Gender	-.05	-.02	No

Compare Regression Coefficients

Negative index for social health, children aged 6-17

Variable	2003 Beta coefficient	2007 Beta coefficient	Within confidence interval for 2003?
Family Structure	.02	.04	No
Poverty	-.03	-.03	Yes
Child Age	-.01	-.05	No
Parent Education	-.07	-.07	Yes
Child Gender	-.01	.00	Yes

Compare Regression Coefficients

Negative index for education, children aged 6-17

Variable	2003 Beta coefficient	2007 Beta coefficient	Within confidence interval for 2003?
Family Structure	.11	.10	Yes
Poverty	-.05	-.04	Yes
Child Age	.08	.05	No
Parent Education	-.08	-.05	No
Child Gender	-.19	-.16	Yes

Compare Regression Coefficients

Negative index overall, children aged 6-17

Variable	2003 Beta coefficient	2007 Beta coefficient	Within confidence interval for 2003?
Family Structure	.26	.39	No
Poverty	-.16	-.20	No
Child Age	.14	.04	No
Parent Education	-.24	-.36	No
Child Gender	-.30	-.26	No

Compare Regression Coefficients

Positive index for physical health, children aged 6-17

Variable	2003 Beta coefficient	2007 Beta coefficient	Within confidence interval for 2003?
Family Structure	-.08	-.07	Yes
Poverty	.08	.05	No
Child Age	-.05	-.02	No
Parent Education	.14	.11	No
Child Gender	.06	.03	No

Compare Regression Coefficients

Positive index for psychological health,
children aged 6-17

Variable	2003 Beta coefficient	2007 Beta coefficient	Within confidence interval for 2003?
Family Structure	-.12	-.03	No
Poverty	.04	.03	Yes
Child Age	-.09	-.05	No
Parent Education	.04	.05	Yes
Child Gender	.07	.02	No

Compare Regression Coefficients

Positive index for social health, children aged 6-17

Variable	2003 Beta coefficient	2007 Beta coefficient	Within confidence interval for 2003?
Family Structure	-.08	-.05	No
Poverty	.07	.04	No
Child Age	-.01	-.08	No
Parent Education	.16	.12	No
Child Gender	.06	.03	No

Compare Regression Coefficients

Positive index for education, children aged 6-17

Variable	2003 Beta coefficient	2007 Beta coefficient	Within confidence interval for 2003?
Family Structure	-.11	-.10	Yes
Poverty	.06	.06	Yes
Child Age	-.10	-.30	No
Parent Education	.10	.06	No
Child Gender	.21	.11	No

Compare Regression Coefficients

Positive index overall, children aged 6-17

Variable	2003 Beta coefficient	2007 Beta coefficient	Within confidence interval for 2003?
Family Structure	-.39	-.24	No
Poverty	.25	.19	No
Child Age	-.25	-.17	No
Parent Education	.45	.34	No
Child Gender	.39	.19	No

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Assess Correlations: 6-11 year olds

	Overall(-) '03	Overall(-) '07	Overall(+) '03	Overall(+)'07
Physical (-)	.72	.59	-.59	-.56
Psychological (-)	.78	.71	-.70	-.56
Social (-)	.47	.56	-.37	-.39
Education (-)	.84	.68	-.77	-.65
Child well-being (-)	1.00	1.00	-.88	-.84
Physical (+)	-.52	-.58	.69	.69
Psychological (+)	-.75	-.65	.80	.58
Social (+)	-.44	-.50	.61	.65
Education (+)	-.80	-.57	.79	.73
Child well-being (+)	-.88	-.84	1.00	1.00

Assess Correlations: 12-17 year olds

	Overall(-) '03	Overall(-) '07	Overall(+) '03	Overall(+) '07
Physical (-)	.71	.60	-.57	-.55
Psychological (-)	.80	.73	-.70	-.60
Social (-)	.52	.58	-.43	-.56
Education (-)	.83	.65	-.76	-.62
Child well- being (-)	1.00	1.00	-.87	-.83
Physical (+)	-.49	-.59	.68	.70
Psychological (+)	-.75	-.67	.80	.62
Social (+)	-.48	-.42	.65	.65
Education (+)	-.79	-.57	.79	.70
Child well- being (+)	-.87	-.83	1.00	1.00

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Assess Regressions for Overall Indices

2003 + R-square	2007 + R-square	2003 – R-square	2007 – R-square
.27	.53	.27	.11

Also, Assess Regressions for Variables that Don't Change Across Years

Variable	2003 (-) R-square	2007 (-) R-square	2003 (+) R-square	2007 (+) R-square
Health promoting behaviors	.05	.08	.25	.23
Externalizing problems	.03	.03	.05	.02
Reads for pleasure	.10	.10	.10	.07

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Compare State Rankings 6-17 (+)

Top 25

2003

1. Minnesota
2. North Dakota
3. Colorado
4. South Dakota
5. Wisconsin
6. Vermont
7. Nebraska
8. New Hampshire
9. Iowa
10. Wyoming
11. Montana
12. Oregon
13. Indiana
14. Utah
15. Washington
16. Kansas
17. Alaska
18. Idaho
19. Connecticut
20. Maine
21. Missouri
22. Massachusetts
23. Virginia
24. Illinois
25. North Carolina

2007

1. New Hampshire
2. Iowa
3. Maine
4. Connecticut
5. Minnesota
6. Wisconsin
7. North Dakota
8. Michigan
9. Montana
10. New Jersey
11. Rhode Island
12. Pennsylvania
13. Washington
14. Vermont
15. Massachusetts
16. South Dakota
17. West Virginia
18. Virginia
19. Missouri
20. Ohio
21. Kansas
22. Oregon
23. Nebraska
24. Florida
25. Illinois

Bottom 26

2003

26. Maryland
27. Michigan
28. California
29. Arizona
30. Ohio
31. Nevada
32. Pennsylvania
33. West Virginia
34. Kentucky
35. Rhode Island
36. New Jersey
37. New Mexico
38. Delaware
39. Oklahoma
40. Tennessee
41. New York
42. Texas
43. Florida
44. Georgia
45. Hawaii
46. Alabama
47. Arkansas
48. South Carolina
49. District of Columbia
50. Louisiana
51. Mississippi

2007

26. Wyoming
27. Maryland
28. Georgia
29. Alaska
30. Idaho
31. Indiana
32. Alabama
33. Colorado
34. Hawaii
35. Utah
36. New Mexico
37. Arkansas
38. Tennessee
39. Kentucky
40. Wyoming
41. California
42. South Carolina
43. Oklahoma
44. North Carolina
45. Nevada
46. Delaware
47. Arizona
48. Mississippi
49. Louisiana
50. Texas
51. District of Columbia

Compare State Rankings 6-17 (-)

Top 25

2003

1. Mississippi
2. Louisiana
3. District of Columbia
4. South Carolina
5. Arkansas
6. Alabama
7. Hawaii
8. Georgia
9. Florida
10. Texas
11. New York
12. Tennessee
13. Oklahoma
14. Delaware
15. New Mexico
16. New Jersey
17. Rhode Island
18. Kentucky
19. West Virginia
20. Pennsylvania
21. Nevada
22. Ohio
23. Arizona
24. California
25. Michigan

2007

1. District of Columbia
2. Arizona
3. Texas
4. Louisiana
5. Mississippi
6. Delaware
7. Nevada
8. North Carolina
9. Oklahoma
10. New York
11. South Carolina
12. California
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14. Tennessee
15. Arkansas
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2003

26. Maryland
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28. Illinois
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41. Oregon
42. Montana
43. Wyoming
44. Iowa
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47. Wisconsin
48. South Dakota
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50. Minnesota
51. Colorado

2007

26. Wyoming
27. Illinois
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35. West Virginia
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Conclusions

- Distributions by gender and age are similar, but not identical across years.
- Coefficients for one year often fall outside the confidence interval for the other year, though the direction and magnitude tend to be similar.
- Results are NOT volatile.
- But there is no gold standard to assess real change relative to changes driven by wording or methodology.

Conclusions

- Theory-driven micro indices are a useful advance and distinguish subgroups of children at a given time.
- Comparisons of trends probably require identical measures at both points in time.