

Methods for creating indices of child well-being: Examples from the National Survey of America's Families

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Research questions

- When comparing how children in different U.S. states fare using a child well-being index, how are results affected by the...
 - Index calculation method?
 - Use of different data sources?
 - Measurement of well-being versus context?

Method: Types of data used

- “Micro” or person-level
 - Data on individual children
 - A separate index score is created for each individual child
 - So, data must come from a single source
 - Index scores can be aggregated for geographic areas or population groups
 - Of course, can be used to generate aggregate indicator estimates, or “macro” data, as well

Method: Types of data used

- “Macro” or aggregate:
 - Indicator data are already aggregated for geographic areas
 - So, can use data from multiple sources in a single index
 - Can use various types of data (vital statistics, survey data, census data)

3 Index Calculation Methods

- Two “macro” methods and one “micro” method
 - KIDS COUNT index of the condition of children (macro level)
 - FCD-Land child well-being index (macro level)
 - NSAF index (micro level)

KIDS COUNT index of the condition of children (macro)

- Developed by Annie E. Casey Foundation to compare the well-being of children across the 50 states in the U.S.
- Method: convert each of 10 indicator values into a standard score for each state
 - i.e., subtract state indicator value from mean across 50 states and divide by standard deviation
- Sum the standard scores

KIDS COUNT index of the condition of children (macro)

- 10 indicators:
 - Child poverty
 - Non-secure parental employment
 - Single parent families with children
 - Infant mortality
 - Low birthweight babies
 - Child deaths (age 1-4)
 - Teen births (age 15-17)
 - Teen deaths (age 15-19)
 - High school dropout
 - Teens not employed and not in school

FCD-Land child well-being index (macro)

- Funded by the Foundation for Child Development, developed by Kenneth Land
- Developed to assess trends over time
- Published since 2004 using 1975 data on
- Each indicator is indexed according to relative change from a base year

$$\frac{\sum \left(100 + \left(\frac{R_{it} - R_{ir}}{R_{ir}} \right) * 100 \right)}{N}$$

FCD-Land index of child well-being (macro)

- Uses 28 indicators at the U.S. level in 7 domains:
 - Family economic well-being
 - Health
 - Safety and behavior
 - Educational attainment;
 - Community connectedness
 - Social relationships
 - Emotional & spiritual well-being

NSAF index (micro)

- Index assesses average number of problems per child
- Includes 28 indicators in 3 domains of well-being
 - Health and safety
 - Education
 - Social and emotional development
- ...and in 2 domains of context:
 - Family processes
 - Sociodemographic risk

NSAF index (micro)

- Each indicator represents a problem or negative context
- Within each domain, sum up the number of items that apply to each child
- Weight each domain score so that maximum possible score is 10
- Sum across domains to create well-being index score (max=30) and condition of children score (max=50)
- Calculate average across children to obtain U.S., state, or other subgroup index scores

Summary of methods

- KIDS COUNT method - MACRO
 - Assesses differences in levels across geographic regions or groups
- FCD-Land method - MACRO
 - Assesses change from year to year
- NSAF method - MICRO
 - Assesses number of problems per child

Using the NSAF to compare methods

- To test how results would differ across methods, we used the National Survey of America's Families (NSAF).
- Cross-sectional data: 1997, 1999, 2002
- 13 American states
- Access to data on individual children (i.e. micro data)
- Includes measures of well-being and context of children
- Rich data for children ages 6-11 & 12-17

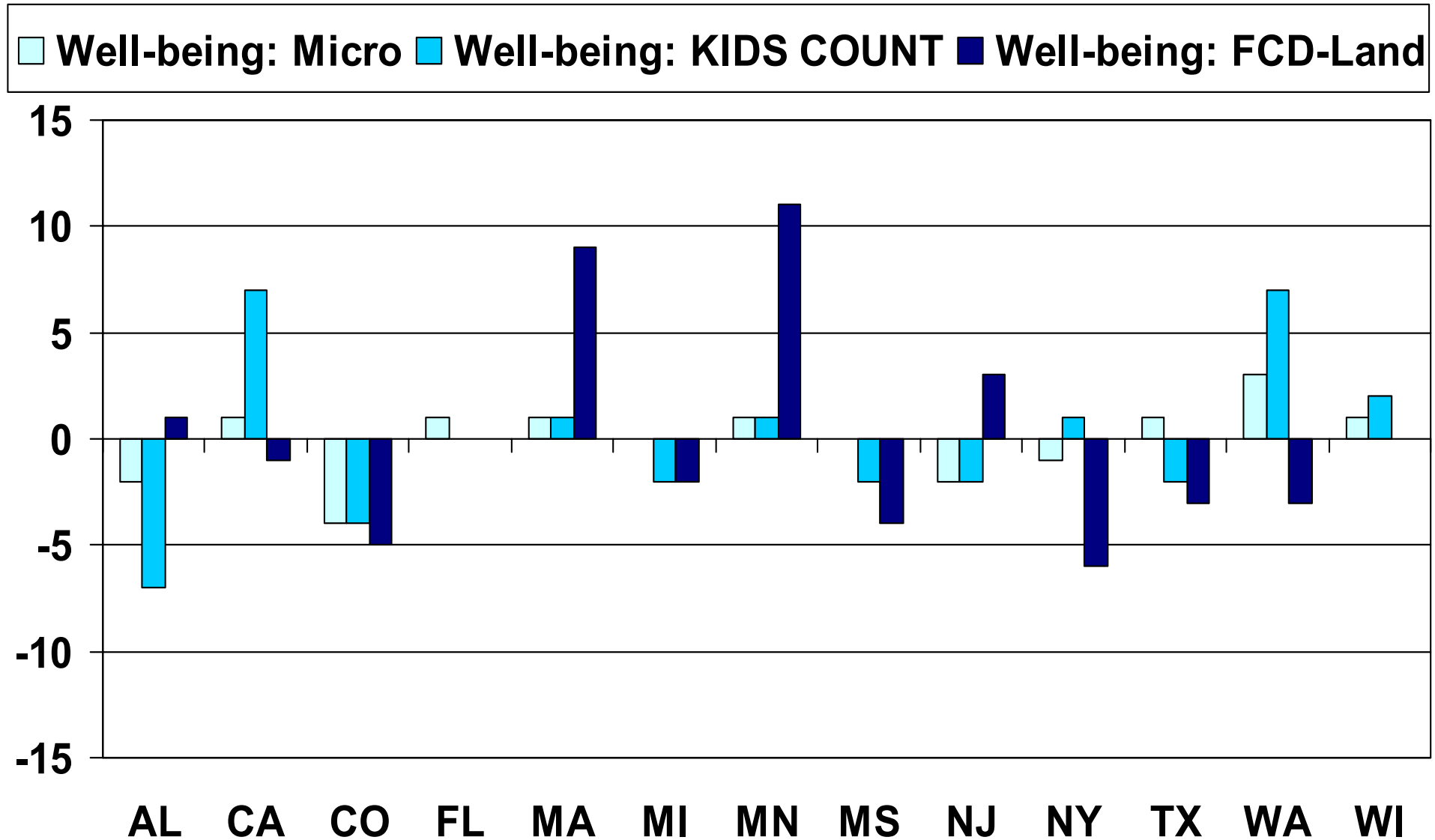
Our steps

- Calculate index scores using the 3 different methods for children in the 13 American states
 - For 3 time points
 - For children 6-11 and 12-17
 - For well-being and for the “condition of children” (i.e., the combination of well-being and context)
- Calculate state-level index correlations and state rankings across calculation method, years, & for well-being and for the condition of children

Our steps

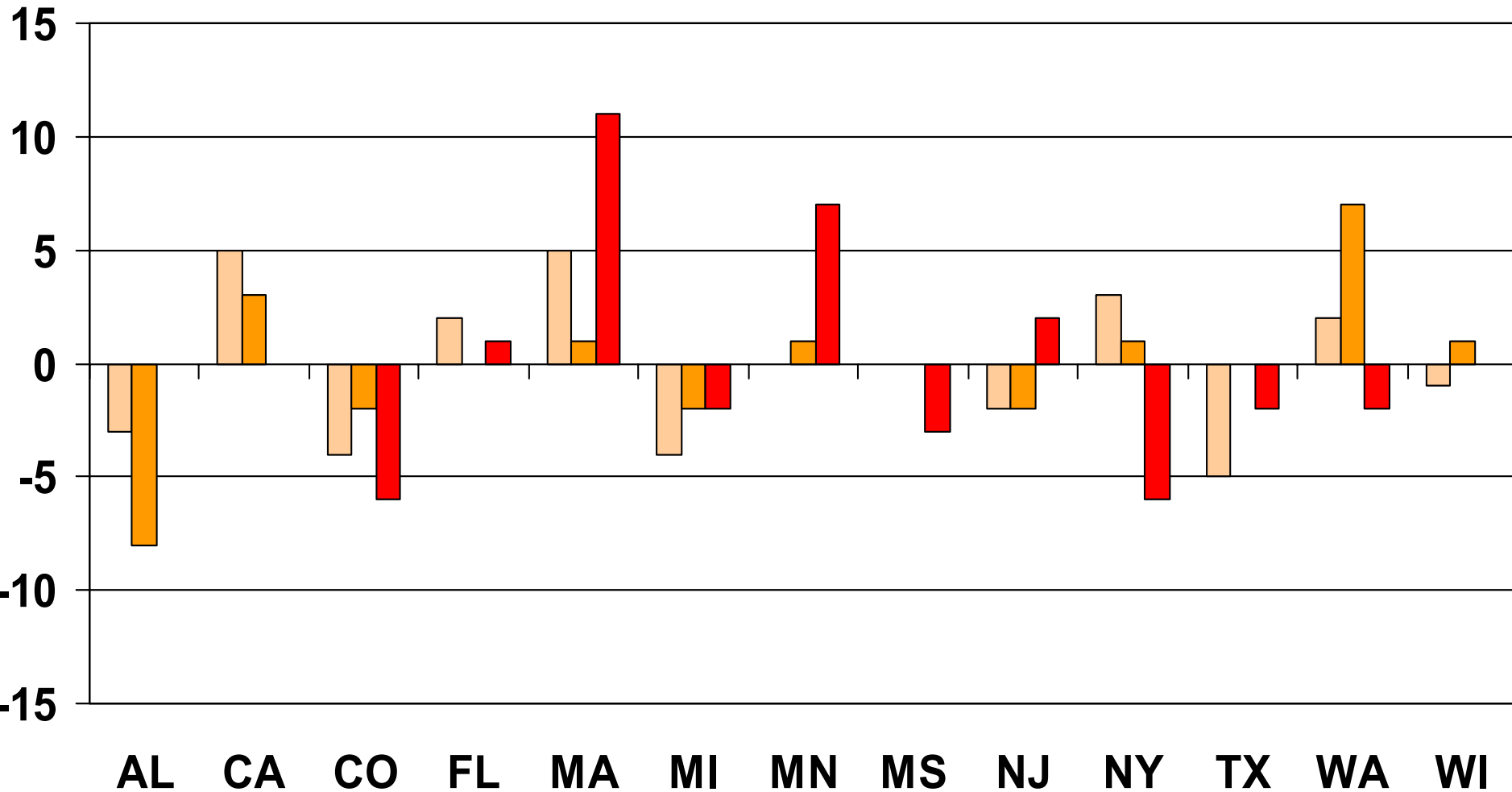
- Compare NSAF state ranking results to results from original KIDS COUNT rankings (which do not use NSAF data)
- Compare the NSAF state rankings using 3 different methods to each other

State rankings for original KIDS COUNT index vs. NSAF well-being indices: ages 6-11, 2002



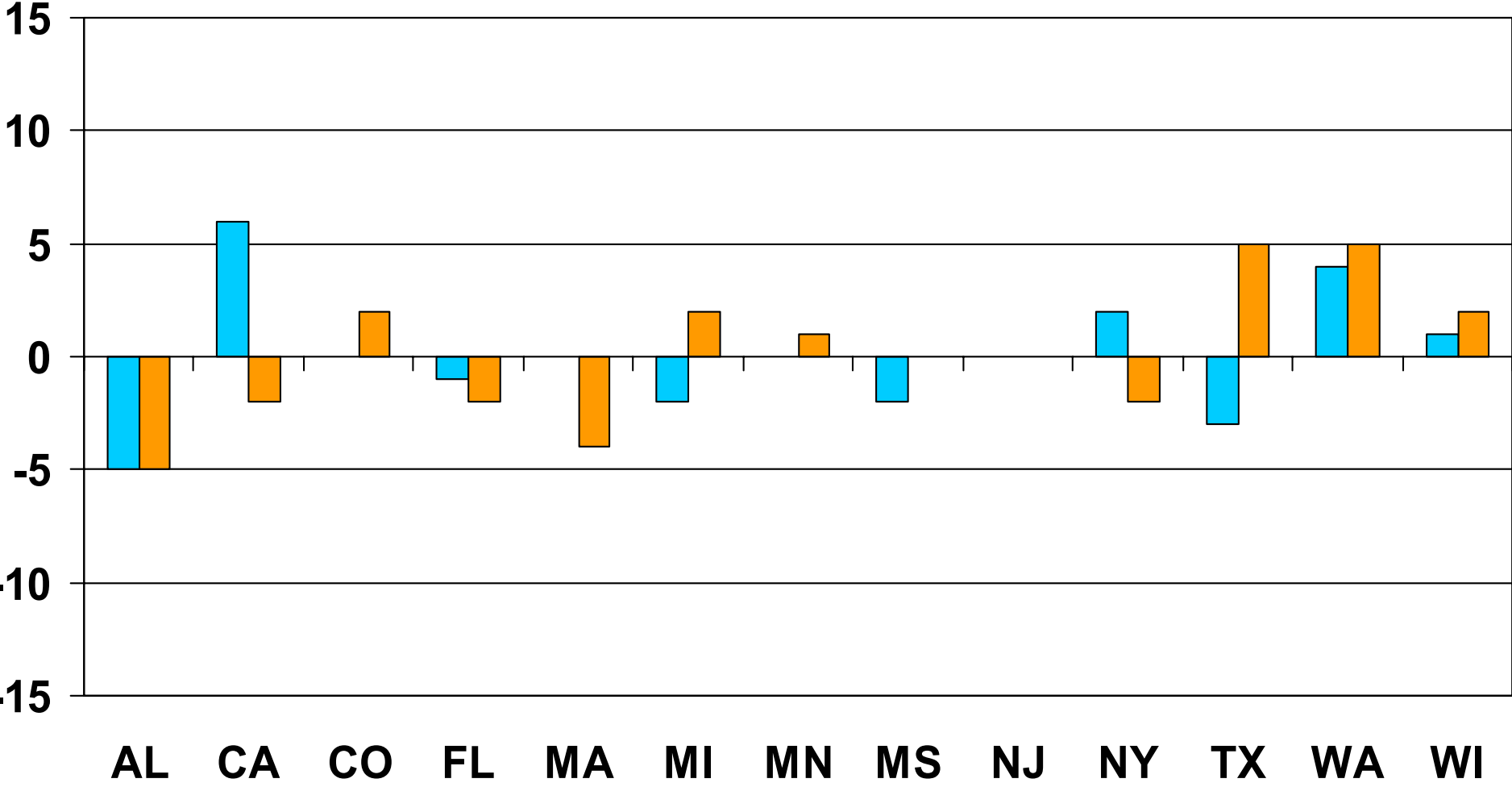
State rankings for original KIDS COUNT index vs. NSAF condition-of-children indices: ages 6-11, 2002

Condition: Micro Condition: KIDS COUNT Condition: FCD-Land



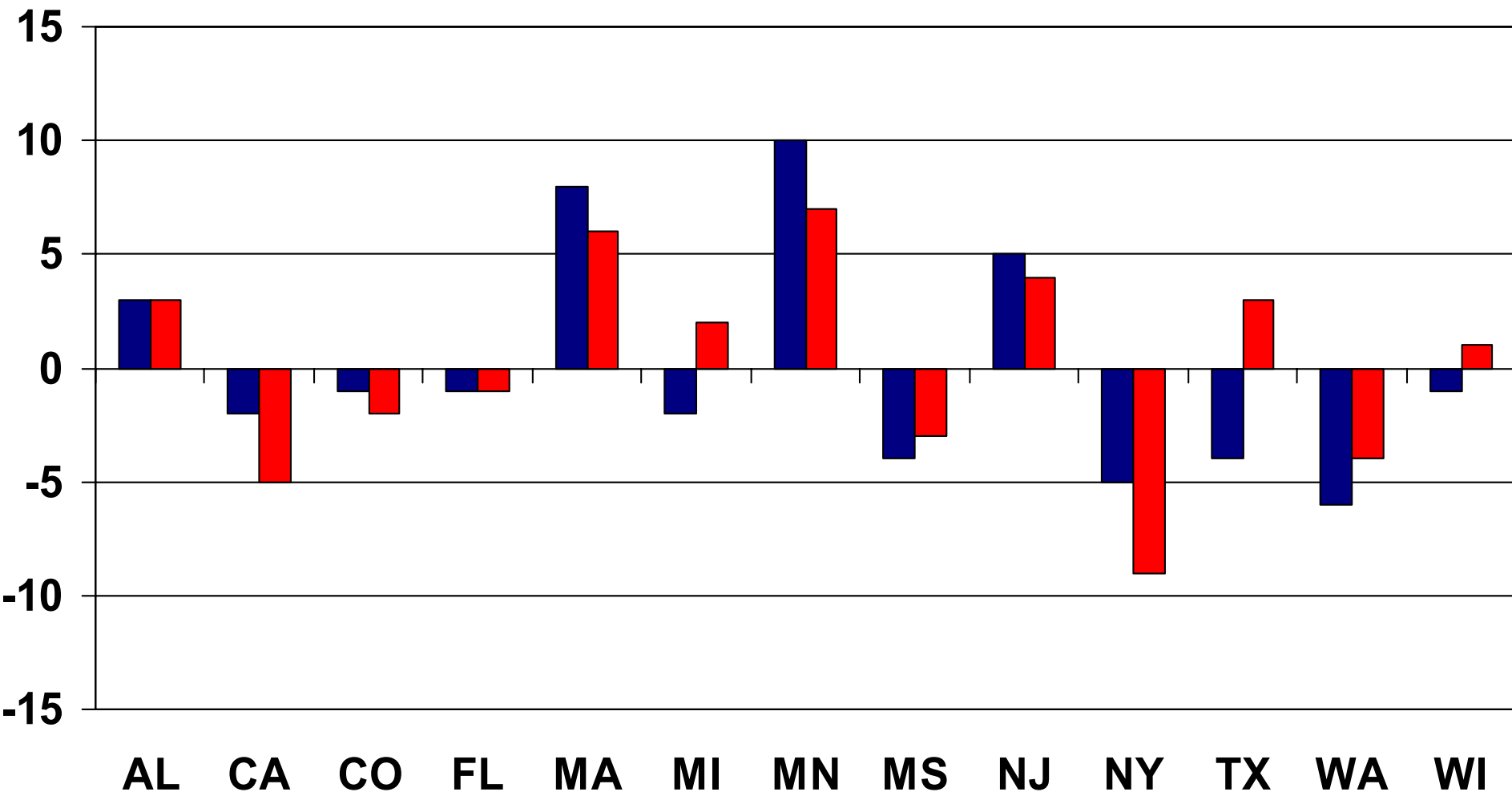
State rankings for NSAF indices using micro vs. KIDS COUNT method: ages 6-11, 2002

Well-being: KIDS COUNT Condition: KIDS COUNT



State rankings for NSAF indices using micro vs. FCD-Land method: ages 6-11, 2002

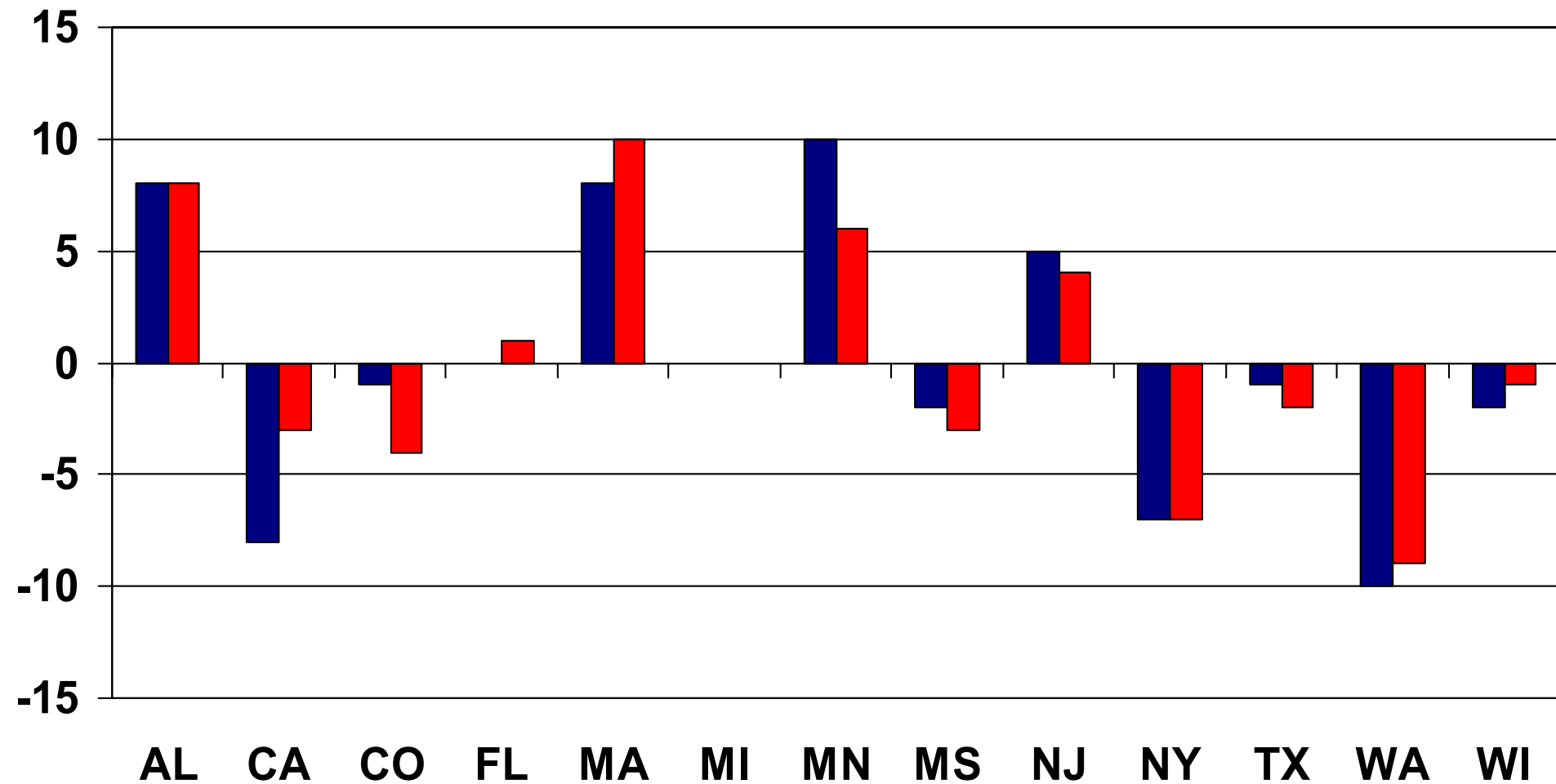
Well-being: FCD-Land Condition: FCD-Land



State rankings for NSAF indices using KIDS COUNT vs. FCD-Land method: ages 6-11

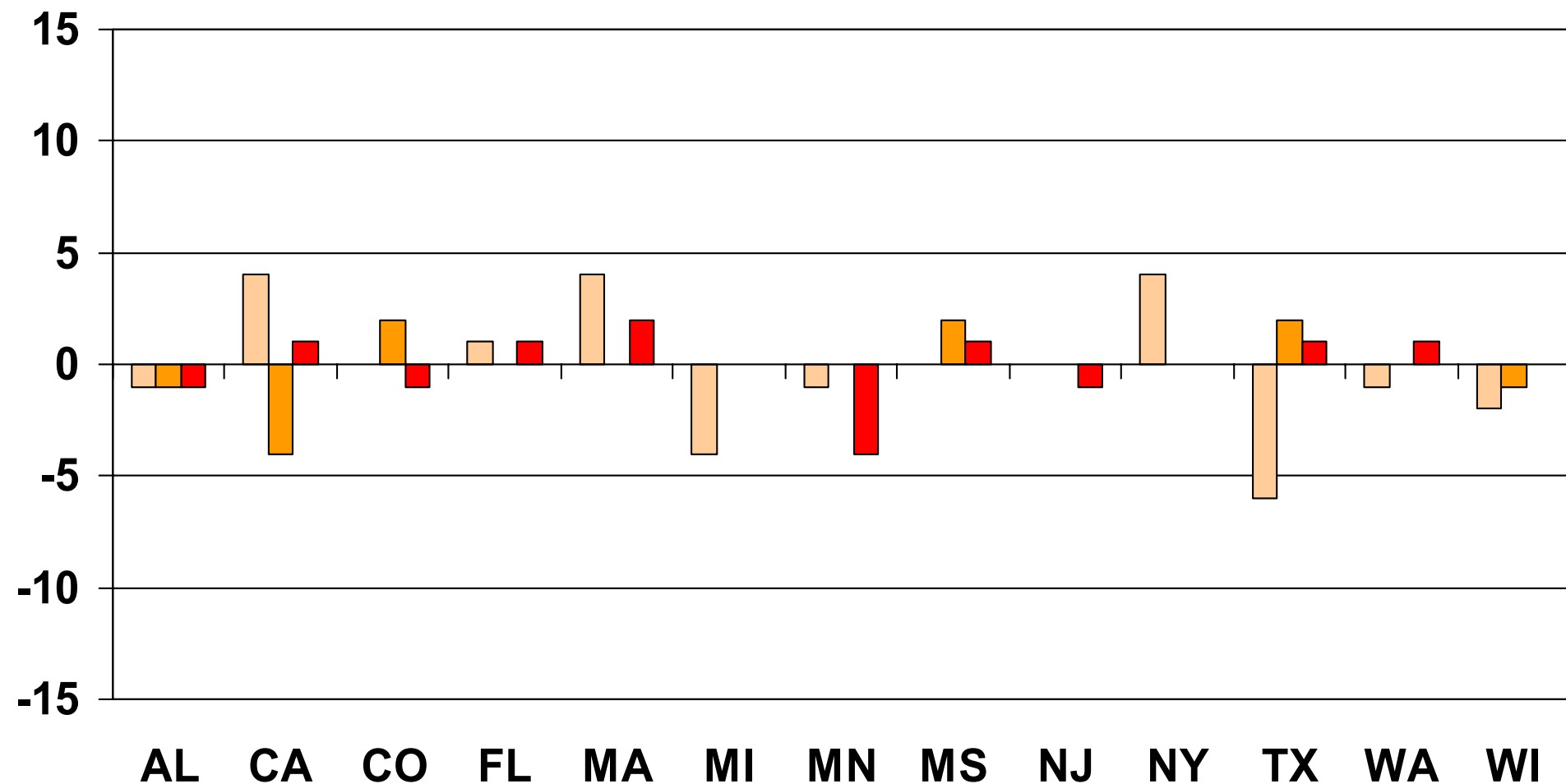
■ Well-being: FCD-Land

■ Condition: FCD-Land



State rankings for NSAF indices assessing well-being vs. condition of children: ages 6-11

Condition: Micro Condition: KIDS COUNT Condition: FCD-Land



Summary

- None of the rankings based on the 3 index calculation methods are identical to the rankings based on the original KIDS COUNT index rankings
- NSAF rankings also differed across the 3 methods of calculation
- The biggest difference in results is when comparing the FCD-Land method to the KIDS COUNT macro method and to the micro method Child Trends developed.

Summary

- State rankings are sensitive to the method of index creation, data source, and to the inclusion of well-being versus condition of children items in the index
- Thus, though no method or type of data is necessarily better than others, understanding differences and implications is important.

Limitations

- Limitations of the availability of items in existing data sources, and limitations of availability of micro data and in the geographic areas represented
- Difficult to choose which items to include
- How can/should relative importance of different indicators be reflected?

Recommendations for method choice

- To measure change in average rate of problems within a state (independent of absolute level of problems) → FCD-Land macro method
- To measure how the level of a state's problems compare overall with other states → KIDS COUNT macro method
- To assess average # of problems per child in a state → NSAF micro method

Recommendations for method choice

- Distinguishing between well-being and context is important
 - Indicators of well-being are direct indicators of how children are faring
 - Indicators of context pertain to aspects of children's environments that can influence their well-being



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