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Assessing Spatial and Temporal Differences in State-Level Child Well-Being Based on Tests of Statistical Significance

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Abstract

The concept of child well-being is central to the study of children and are reflected in data books, statistical indices, and report cards. Statistical indicators of child well-being are increasingly used to examine the quality of life for children. Such reports are often used to examine differences across geographic areas (spatial differences) and changes over time (temporal differences). In this study, indicators from a widely used report on child well-being are used to compare spatial differences and temporal differences among states in the U.S. based on tests of statistical significance. Results show that currently available indicators are better at detecting differences in child well-being between states at one point in time rather than state-level changes over time. Additionally, a state index of child well-being is constructed using only indicators that are statistically significant different than the national rate; the results of the new index proved to be similar to the more traditional z-score method.

Keywords

Child well-being; indicators; indices; scores or rankings

Introduction

The concept of child well-being is central to those studying the quality of life and welfare of children. While there is no agreement on exactly what child well-being means (Ben-Arieh et al. 2015), there is widespread agreement that it is multi-faceted and that there are data available to reflect of the most important dimensions. Given its multi-dimensional nature, researchers argue that multi-item indices may be the best way to reflect the nature of child well-being (Moore et al. 2014).

The use of statistical indicators to measure and monitor the well-being of children is increasing rapidly (O'Hare and Guttierrez 2012; Ben-Arieh et al 2014; Fernandes et al 2012; Lamb and Land 2013; Pollard and Lee 2002). Two of the most prominent uses of indicators

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are to examine differences in child well-being across geographic units and changes in indicators over time. Differences among geographic units are referred to here as spatial differences and differences over time are referred to as temporal differences. These two different dimensions of child well-being are examined here using the same set of indicators of child well-being.

Despite the expanding use of statistical indicators of child well-being, tests of statistical significance are seldom used. For example, in examining more than 20 studies that were based on comprehensive indices of child well-being, O'Hare (2012) found none used statistical significance testing to examine differences across geographic units or changes over time. No study has examined the statistical significance of U.S. state differences and changes over time in a comprehensive way.

In this study, we analyze indicators used in the national KIDS COUNT Data Book, an annual report on the well-being of the nation's children. Using this particular data, we examine the number of state-level indicator values that are statistically significantly different than the corresponding national figure in each of three recent years (spatial). We also we examine the statistical significance of changes over time for 14 statistical indicators across 50 states over three time periods (temporal). Finally, we construct an index of child well-being for the states based only on indicators that are statistically significantly different than the national value and compare that index to a more traditional index based on standard scores (the KIDS COUNT Data Book index).

This study is designed to answer several questions:

1. What percent of state indicator values are statistically significantly different than the corresponding national value?
2. Which indicators are most likely to detect statistically significant differences between the states and the national rate?
3. What percent of state indicator values show a statistically significant difference over time?
4. Which indicators are best at detecting statistically significant differences in individual states over time?
5. Do state child well-being rankings based on an index of statistically significant differences differ from state rankings based on a standard scores index?

1. Background

Many researchers have used statistical indicators of child well-being to examine spatial differences in child well-being across countries (UNICEF 2007, 2010, and 2013; Bradshaw and Richardson, 2009; Lau and Bradshaw, 2010; Richardson et al 2008). There is variability in the indicators and methods used across indices (Moore et al. 2008). For instance, O'Hare (2014) examined spatial differences in child well-being at the country, state, and local level based on multiple methodological approaches. His findings showed that various methods often have very similar results in ranking of child well-being (O'Hare 2014).

Differences in child well-being have also been examined for sub-national units of geography. The Annie Casey Foundation (2014) has produced a data book each year since 1990 that examined state-level differences in child well-being using a variety of indicators. Many other reports have examined state level differences in the U.S. (O'Hare, et al, 2013; Every Child Matters 2008; Children's Rights Council, 1998; Children's Defense Fund, 2013; U.S. Department of Health and Human Resources 2005). Researchers have also examined sub-national units in other countries, such as states in Mexico (La Red por los Derechos de al Infancia en Mexico 2013) and provinces in Korea (Lee et al 2013).

Reports are also used to understand child well-being at more localized geographies. Bradshaw et al. (2009) examined differences among small areas within England. Lee et al. (2009) used child well-being indicators to examined changes in communities in the San Francisco Bay area. Hur and Testerman (2012) looked at difference in child well-being among counties in North Carolina.

Statistical indicators have also been used to examine temporal changes, or those over time, in the well-being of children. Land et al. (2013) have produced a comprehensive index of child well-being every year since 2004 which measures changes in the overall well-being of children in the United States. O'Hare and Lamb (2004) examined changes in state-level child well-being during the 1990s, and O'Hare and Lamb (2009) looked at changes from 2000 to 2005. Lamb and O'Hare (2013) also looked at state-level changes from several perspectives.

While indicators of child well-being have been used extensively to examine spatial and temporal differences, tests of statistical significance are seldom used in such studies. None of the previously mentioned studies used statistical significance testing in their research. No academic work has examined the statistical significance of state differences and changes over time in a comprehensive way - which is the main aim of the current study. O'Hare (2006) examined the extent to which state-level values for ten indicators were statistically significantly different than the corresponding national measure. He found that about 70 percent of the 500 possible comparisons were statistically significantly different from the national rate. However, he did not compare spatial versus temporal differences, which the current study does. One study, Moore et al. (2008), used tests of statistical significance to examine differences in domain scores for a sample of U.S. children. This work will be extended here in relation to the KIDS COUNT index where we will use tests of statistical significance to create and analyze our index of child well-being.

One set of public reports have used statistical significance testing based on child indicators. When the U.S. Federal Interagency Forum (2014) releases their annual signature report "America's Children: Key Indicators of Child Well-Being" they examine the statistical significance of changes over time in the 60 measures. In the 2014 report, only 21 of the 60 indicators of child well-being examined showed a statistically significant change over time. This does not include demographic changes, which we do not view as measures of child well-being. For most of the indicators a one year time period was used, but for a few indicators longer periods were examined. It should be noted that one would expect national

differences over time to be more statistically significant than state differences because they are based on larger sample sizes and larger numbers of events (such as birth and deaths).

In part, the lack of statistical significance testing in indicator reports may be due to the fact that many reports are intended for public rather than scholarly audiences. One study by Ben-Arieh (2006) found relatively few indicator reports around the world were produced by academics, and most were from governments, advocacy groups, and international organizations. Only 16 percent of the 199 studies found by Ben-Arieh were classified as academic. This reflects the strong public use orientation of such reports (O'Hare 2014). However, there is little research on the public's understanding of basic statistical knowledge (National Science Board 2004). One study (Child Trends 2002) found that the public does not have a good grasp on the concept of standard error and statistical significance testing. Consequently their use in reports meant for public audiences may need more clarification.

While many studies have used indicators to assess child well-being, few studies have utilized the tests of statistical significance in their analysis. Additionally, no study has systematically assessed the functionality of using these types of tests to create rankings of indicators spatially and temporally. In this study, we will use indicators and their respective tests of statistical significance from a widely used report to investigate spatial and temporal change as well as the use of statistical significance tests in creating an index.

2. Data and Methods

Data used for this study come from The Annie E. Casey Foundation's annual KIDS COUNT Data Book which has been published each year since 1990 (The Annie E. Casey Foundation 2014). The KIDS COUNT Data Book is widely seen as an authoritative publication on child well-being in the United States (O'Hare 2008; O'Hare 2012). These data were used in order to systematically compare our chosen form of analysis with results already published using the same data.

For this study, statistical indicators from the 2012, 2013, and 2014 editions of the KIDS COUNT Data Book are used to assess child well-being. The 16 indicators in the 2012, 2013, and 2014 KIDS COUNT Data Book were selected based on input from a set of national experts, as well as well-established criteria (The Annie E. Casey Foundation, 2006, page 178). Tests of statistical significance are not used in the KIDS COUNT publication, but when the indicators are released each year, the 90 percent confidence intervals are made available on the KIDS COUNT website in a set of auxiliary tables. More background on the indicators used in the recent KIDS COUNT Data Books is available in Mather and Dupuis (2012).

One potential issue with using various data sources is sampling. Since the current study is using tests of statistical significance, we relied on only the indicators that provided these sampling errors. Two of the sixteen indicators in the Data Book are not included in this study for different reasons. The percent high school students not graduating on time is based on a universe so there is no sampling error associated with this measure. Therefore, we were not able to use this indicator. The percent of children living in high-poverty areas is based on

a five-year rolling average. Consequently, there is little change in the underlying data from one year to the next; therefore, it did not seem appropriate to include it in a study that measures temporal differences.

The 14 indicators of child well-being used in this study are listed in Table 1; all of which came from the KIDS COUNT Data Book. The data provided are the most recent available when the Data Book was published and all data come from U.S. government statistical agencies. While the survey sizes and sampling error may vary, we rely on the systematic reviews done by the KIDS COUNT network regarding the validity and reliability of these indicators (Mather and Dupuis 2012; Mathers et al. 2007). We briefly elaborate on each data source used for each indicator.

There are four main sources for the 14 indicators used in the KIDS COUNT Data Book and in the current study (see table in Appendix). The first is the U.S. Census Bureau, American Community Survey and Population Estimates. The second is the U.S. Department of Education, National Center for Education Statistics, National Assessment of Educational Progress. The third is the Centers for Disease Control and Prevention, National Center for Health Statistics, Vital Statistics. The fourth is the Substance Abuse and Mental Health Services Administration, National Survey on Drug Use and Health.

Most of the indicators used in the KIDS COUNT Data Book and in this study come from the American Community Survey. The overall survey size for the 2012 U.S. is 2.375 million people.. The ACS acknowledges the issue of sampling error, considering that the surveys are drawn from a sample of households rather than the entire U.S. population. While sampling could be a potential issue, the use of state level estimates lends reliability to the data (versus smaller estimates like counties, which the Census suggests caution in interpreting) (U.S. Census Bureau n. d.). The Census Bureau's Population estimates are used to calculate deaths and births indicators used in this study. To ensure reliability, these estimates are calculated in a top-down manner, utilizing the largest population first (U.S. Census Bureau 2014).

The education indicators used in this study come from the U.S. Department of Education, National Center for Education Statistics, National Assessment of Educational Progress (NAEP). The NAEP tests are widely used in research to assess the academic achievement of the nation's children. The NAEP uses a complex sampling design and estimation tests for sampling error. The methodology used lends reliability and validity to the data (National Center for Education Statistics 2011).

Three of the indicators in this study use data from the Centers for Disease Control and Prevention, National Center for Health Statistics, Vital Statistics. There are two perspectives on random error associated with vital events data. One perspective sees the vital events data as a count and therefore not subject to sampling error. The other perspective sees the number of events in any one year as one of a large set of possible outcomes that might have occurred and therefore subject to random error¹. We elect to use the later perspective in analyzing the data here. In many cases, the number of events are small and we believe using those rates to

¹The two perspectives are noted in the passage below (National Center for Health Statistics 1994, page 30): "The number of deaths reported for an area represent complete counts of such events (except for 1972, when the data were based on a 50-percent sample

represent an underlying level of risk includes some random error (for more discussion from the National Center for Health Statistics, please see Heron et al 2009, starting on page 60). In addition to viewing the numerator of rates as having some random error, the denominators which are population estimates from the Census Bureau, also contain some.

One final source of data, used here for the indicator regarding teens drug and alcohol use, is the Substance Abuse and Mental Health Services Administration's National Survey on Drug Use and Health. This national survey is conducted annually and randomly samples over seventy thousand individuals ages 12 and older. Methodology reports are frequently conducted on the data (Center for Behavioral Health Statistics and Quality 2014).

Overall, we are confident in the reliability and validity of the indicators used in this study. Our main aim is to compare methodology with the KIDS COUNT Data Book; here, we analyze the use of tests of statistical significance. We examined the extent to which state values on each of the indicators are statistically significantly different than the national value for that indicator. We also examined the statistical significance of changes over time within each state using the state level indicators.

To establish a measure of spatial differences, the value of each indicator in each year for each state was compared to the corresponding national value to see if the difference was statistically significant at the 90 percent level using a two-tailed test of significance. The 90 percent confidence interval is used by the KIDS COUNT Data Books in the appendix tables available for public use (The Annie E. Casey Foundation 2014). Collectively, the three years of data provide 2,100 comparisons. For each indicator the number of times the state values was statistically significantly different than the national value was noted and the total for all indicators were summed for each year and across all three years.

To examine temporal differences we looked at three time periods. Each individual state's tests of statistical significance were compared over time. First, data from the 2014 Data Book was compared to the data used in the 2013 Data Book (See Table 2). Most of these comparisons reflect one-year differences. There are also two measures that are multi-year averages which makes analysis complex. For these items, we only compared time periods which did not overlap. Next, we examined changes from the most recent year of data presented in the 2012 data book to the 2014 Data Book (See Table 2.) Most of these comparisons reflect 2 years of change. Finally, we examined a longer period of time by looking at changes from a base line to the most recent data within each state. The baseline year was often around 2005, but some indicators used 2000, 2008, or a particular survey year as their base; the baseline was dictated by the availability and comparability of data. The baseline and the date of the most recent data varies for different indicators as shown in Table 2.

because of human resource constraints). As such, they are not subject to sampling error, although they are subject to non-sampling errors in the registration process. However, when the figures are used for analytical purposes, such as comparison of rates of time or for different areas, the number of events that actually occurred may be considered as one of a large series of possible results that could have arisen under the same circumstances. The probable range of values may be estimated from the actually figures according to certain statistical assumptions."

There were two types of problems we encountered in making the comparisons over time. First, some indicators were not updated every year. Table 1 shows the actual year of data that appeared in each of the KIDS COUNT Data Books from 2012 to 2014. Some indicators, such as the reading and math proficiency scores, are only produced every other year. Additionally, child and teen deaths use the same year of data for the 2013 and 2014 Data Books, and the NAEP scores are the same in the 2012 and 2013 Data Books. In some cases, such as teen death data, releases were delayed in making updated information available, so the same data was used for two years in a row. Also, some of the indicators are based on multi-year average, so comparison from one year to the next is not comparing two independent values. Those two indicators are: children not attending preschool, and teens who abuse alcohol or drugs.

One of the main pieces of the KIDS COUNT Data Book is their state-level index, constructed from z-scores. Since our study aims to compare methods, we also constructed a state-level index of child well-being based only on differences that were statistically significant. Construction of a comprehensive composite index is one of the most efficient ways to communicate patterns and trends in child well-being (Organisation for Economic Co-operation and Development 2008 and 2009). A child well-being index can be used to combine multiple indicators of well-being across many dimensions into a single measure of overall well-being. Summary indexes provide a snapshot that people can understand and they are favored because they provide a score or rank among peer groups (Moore et al. 2014). For many audiences, an index provides a more concise and understandable portrayal of child well-being than a collection of data tables for the individual measures. An index helps one quickly determine which states are doing better and which are doing worse in terms of child well-being overall. Combining several indicators into an index of well-being also mitigates possible mis-measurement in any single indicators and reduces the impact of outliers. In addition, decomposition of an index can help researchers determine which measures are driving the overall outcomes (OECD 2008 and 2009).

The KIDS COUNT Data Book presents an index of overall child well-being every year, which uses the standardize scores method (O'Hare 2014). This is done by subtracting the mean state value from the observed state value and then dividing by the standard deviation for the whole set of states. These values are then aggregated into the final index ranking, giving equal weight to each indicator to create a domain score and then an overall index score (Mather and Dupuis 2012). Since the KIDS COUNT indicators reflect negative experiences (i.e. poverty, infant mortality, etc.) a negative index value reflects better child outcomes than a positive index value. For instance, a reduction in child poverty is a better outcome compared to an increase in the child poverty of a particular state.

We produced a similar state-level index using only statistically significant differences. We made sure our index had the same directionality as the KIDS COUNT index, that is, with better outcomes being negative. In other words a negative value means the state has an indicator value below the national figure. For instance, a lower child poverty rate than the national average is numerically negative but is a better outcome. Once statistical significance has been established for each difference between a state value and the corresponding national value, a state index was constructed based on the number and direction of

statistically significant differences. Every time a state was statistically significantly higher than the national average, the state is assigned a numerical value of positive one (+1) for that indicator. If there is no statistically significant difference between the state and the national average the state is given a zero for that indicator. If the state is statistically significantly below the national average, it is assigned a numerical value of negative one (−1). When states have been given a score for each indicator, the scores across all indicators are totaled to construct an index score and the states are ranked based on this score. Index score range from −14 to +14.

3. Results

First, we examine the statistical significance of spatial differences and then we examine the statistical significance of temporal differences. Finally, we examine the results of an index based only on statistically significant data compared to the traditional standard (z-score) method.

Spatial Differences

Table 1 shows the statistical significance of state figures compared to the national figure based on data in the 2012, 2013, and 2014 KIDS COUNT Data Books. Since there were 14 indicators for each of the 50 states, there are 700 possible comparisons each year. Almost 80 percent of the state figures were statistically different than the national figure each year. The figures were consistent over the three years: 79 percent in the 2012 Data Book, 76 percent in the 2013 Data Book, and 78 percent in the 2014 Data Book. Collectively, over the three years, 78 percent of the state values were statistically significantly different than the national value. In every year, the number of states that were statistically significantly better than the national figure is nearly the same as the number that are statistically significantly worse than the national figures (data not shown here).

Table 1 shows how the 14 indicators ranked based on statistically significant comparisons over the three years of data examined here. For most of the indicators, the percent of comparisons that were statistically significant are relatively high. The one indicator that was an outlier was Teens Who Abuse Alcohol and Drugs where only 7.3 percent of the comparisons of the state figures to the national figure are statistically significant. This indicator is based on a small sample size. There were roughly 68,000 interviews across all 50 states (for more information about their sampling differences across states see SAMSHA 2014). All of the other indicators were above 59 percent with the two National Assessment of Education Progress-based indicators at 100 percent.

Temporal Differences

Three different periods were examined here to assess temporal changes in child well-being indicators across each state. First we examined changes in indicator values in each state from the 2013 KIDS COUNT Data Book compared to the 2014 KIDS COUNT Data Book. This generally provides a one-year period of change but there are exceptions. In these analyses, the states are compared to themselves across time. See Table 2 for the year of the indicator values in each Data Book.

Next, we examined the changes between the 2012 KIDS COUNT Data Book and the 2014 KIDS COUNT Data Book, providing a two-year period. Finally we examined longer term changes by examining changes from a baseline and the most recent year available i.e. that in the 2014 Data Book. The time period examined varies for indicators. Table 3 shows the statistical significance of differences over time among the states; only 110 of the 700 changes were statistically significant in the one-year comparison. This amounts to 16 percent of the total comparisons. For the two-year comparison, 170 of the 700 comparisons were statistically significant which amount to 24 percent of the total. For long term changes, 359 of the 700 comparisons were statistically significant which amount to 51 percent. If changes over time are monotonic, one would expect differences that reflect a longer period of time would be more likely to be statistically significant than those reflecting a shorter period of time. That is what is found here.

Among the 14 indicators there is a lot of variation in the share of temporal comparisons that were statistically significant. The indicator with the highest share of statistically significant changes over time was the Teen Birth rate at 96 percent, and the indicator with the lowest share is Eighth Graders Not Proficient in Math at 0 percent. Nationally, the teen birth rate has been changing rapidly across time, whereas national tests scores are slower to change.

Index

Table 4 shows the states ranked on our index of well-being using only statistically significant differences along with the state ranking from the 2014 KIDS COUNT index, which uses a traditional standard scores method for combining indicators (O'Hare 2014). The rankings from the two indices are similar. The rank-order correlation is +0.94. This suggests that an index based on traditional z-score methodology produces results, in terms of rank ordering, that are very similar to an index based only on statistical significance differences.

4. Discussion

The analysis shows that the statistical indicators used to measure state-level differences in child well-being in the United States are typically better able to detect statistically significant spatial differences across states than statistically significant state-level temporal differences. For the vast majority of child well-being measures for the majority of states, the national figure and the state figure are statistically significantly different. This has important implications for the value and use of national data to measure child well-being because conditions in the vast majority of states are not reflected in national measurements.

These findings underscore the importance of developing, disseminating, and using state-level measures of child well-being in a social policy context. There is enormous variation in the well-being of children across the states and any attempt to mold social policies to improve the lives of children should reflect those state differences. By extension, it underscores the importance of measuring child well-being at the sub-state level. Since child well-being researchers, and the organizations they work for, are often faced with very limited resources, focusing on difference across geographic units is likely to be more productive than focusing on temporal changes. Additionally, temporal changes may be stronger across longer periods of time. This is important for organizations that utilize and

collect data. By supporting collection of data across longer periods of time, temporal differences may be more likely to emerge.

There are a couple of limitations of the current study that should be noted. This study focuses only on one type of geographic unit (states) in one country (the United States). It is not clear if other countries would have similar findings based on the indicators, time periods, and sub-groups that they have available. We suspect that the properties that lead to more statistically significant differences spatially than temporally are likely to apply in many other areas. Child well-being often changes slowly, so researchers are unlikely to find statistically significant change in short periods of time. Differences across units of geography reflect an accumulation of change over many years. In addition, temporal change is not always linear or monotonic. To the extent child well-being may increase and/or decrease over time, change may confound this type of measurement. Hopefully, this article will stimulate similar research in other types of geographic units and other countries.

The findings presented here are based on states but they may have implications for sub-state areas such as counties or cities. Note that the share of changes that were statistically significant at the national level in a similar report, "America's Children", were higher than those over a one or two year period at the state level. For the 2014 edition of America's Children, 21 of the 60 (35 percent) indicators showed a statistically significant change. But at the state level, only 16 percent of indicators showed a statistically significant change over one year and 24 percent over two years. This is likely a product of smaller samples or number of events for states compared to the nation as a whole. Extending this line of thinking to counties and cities suggests that researchers are even less likely to find statistically significant changes the sub-state level than found at the state level.

Another limitation of the present study is that it used only 14 indicators of child well-being. While the 14 indicators studied here are widely used, it is not clear that the findings from this study would be replicated if other indicators were used. This study used one set of indicators, but future research should broaden the investigation of indicators and their spatial and temporal differences.

Note that most of the indicators used here are from surveys rather than administrative data. Only three of the indicators used here are from administrative records (birth and death certificates). If a set of geographic units based child well-being measures on administrative data it may alter the findings shown here, particularly in places where all children are included in administrative data. This raises a broader question about the relative strengths and weaknesses of child well-being measures based on surveys compared to those based on administrative records. While both types of data are used regularly in child well-being research, there is little in the literature comparing their relative strengths. This is an area of potential future research.

The dearth of statistically significant changes found here may also shed light on attempts to impact policy changes. Those seeking to understand the impact of public policies on children may profit more from comparing differences across states than for examining trends over time. Additionally, data collection across many locations and time periods will help to

better understand the state of child well-being in the U.S. More research should be conducted on the level of changes that policy makers see as meaningful.

Another potential area of research that this study suggests is regarding public understanding of statistical terms. Most of the research on public understanding is in regards to science and technology specifically, and only one recent major study (Child Trends 2002) has been conducted on this issue. Given that there were spatial differences using tests of statistical significance, more research should be focused on translating this information to the public and their understanding should be systematically tested.

The state level index is a major part of the work of the KIDS COUNT Data Book. The state child well-being rankings based on an index using only statistically significant differences is nearly the same as the ranking using the traditional z-score approach. This suggests that rankings that do not include measures of statistical significance are likely to provide results that are similar to those that do use statistical significance testing. Again, given limited resources among youth serving organizations, it is important to note that multiple methods result in similar findings.

Summary

In the U.S. context, nearly 80 percent of the differences between a state value and a national value for a measure of child well-being are statistically significant. When differences over time are examined, short term changes (1 or 2 years) are not as likely to be as statistically significant as longer term changes. Only 16 percent of one –year changes are statistically significant compared to 24 percent of two-year changes and about 50 percent of longer term changes.

With currently available child well-being indicators, we are better able to detect spatial differences across states than changes over time in states. These findings underscore the importance of state-level measures of child well-being for understanding the condition of children and for crafting appropriate social policies to ameliorate problems. National measures of child well-being tell us very little about the conditions in any particular state. Additionally, an index based only on statistically significant indicators would result in similar state ranking to the currently KIDS COUNT method using all data. These results suggest various methods can be used to understand child well-being in the U.S..

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

Endnotes

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Table 1

Number of States with Statistically Significant Differences Between National Figures and State Figures for each of 14 Indicators: 2012, 2013,

	Data from 2012 KIDS COUNT Data Book	Data from 2013 KIDS COUNT Data Book	Data from 2014 KIDS COUNT Data Book	Percent that are Statistically Significant Over Three Years
Fourth graders not proficient in reading *	50	50	50	100
Eight graders not proficient in math *	50	50	50	100
Children without health insurance	45	46	46	91
Teen births per 100,000	44	45	46	90
Children in poverty	44	44	46	89
Children living in households with a high housing cost burden	46	43	41	87
Children in families where the household head lacks a high school diploma	43	41	43	85
Children whose parents lack secure employment	41	38	43	81
Children in single-parent families	41	38	42	81
Children not attending preschool	41	38	39	79
Low-birthweight babies	39	40	39	79
Teens not in school and not working	33	30	32	63
Child and teen deaths per 100,000 **	33	28	28	59
Teens who abuse alcohol or drugs,	5	3	3	7
TOTAL	555	534	548	1637
TOTAL POSSIBLE (50×14 = 700)	700	700	700	2100
PERCENT OF DIFFERENCES THAT ARE STATISTICALLY SIGNIFICANT	79	76	78	78

* 2013 data same as 2012 data

** 2014 data same as 2013 data

Table 2
Year of Data in Each Data Book 2012–2014 and Base-Year for Trends Over Time

	Base Year	Data from 2012 KIDS COUNT Data Book	Data from 2013 KIDS COUNT Data Book	Data from 2014 KIDS COUNT Data Book	Years from 2013 to 2014 Data	Years from 2012 to 2014 Data
Fourth graders not proficient in reading *	2005	2011	2011	2013	2	2
Eight graders not proficient in math *	2005	2011	2011	2013	2	2
Children without health insurance	2008	2010	2011	2012	1	2
Teen births per 100,000	2005	2009	2010	2012	2	3
Children in poverty	2005	2010	2011	2012	1	2
Children living in households with a high housing cost burden	2005	2010	2011	2012	1	2
Children in families where the household head lacks a high school diploma	2005	2010	2011	2012	1	2
Children whose parents lack secure employment	2008	2010	2011	2012	1	2
Children in single-parent families	2005	2010	2011	2012	1	2
Children not attending preschool	2005–2007	2008–10	2009–2011	2010–2012	1	2
Low-birthweight babies	2005	2009	2010	2012	2	3
Teens not in school and not working	2008	2010	2011	2012	1	2
Child and teen deaths per 100,000 **	2005	2009	2010	2010	0	1
Teens who abuse alcohol or drugs	2005–2006	2008–09	2010–2011	2011–2012	1	3

* 2013 data same as 2012 data

** 2014 data same as 2013 data

Table 3
Number of states with significant differences between data reported in Various KIDS COUNT Data Books

	Comparison of Data in 2013 to 2014 Data Book		Comparison of Data in 2013 to 2014 Data Book		Comparison of Base Period to Most Recent Period		Total Over All Three Periods	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Teen births per 100,000	43	86	48	96	47	94	138	92
Children living in households with a high housing cost burden	25	50	30	60	15	30	70	47
Children without health insurance	7	14	20	40	40	80	67	45
Children in poverty	6	12	18	36	41	82	65	43
Children whose parents lack secure employment	3	6	13	26	37	74	53	35
Children in single-parent families	2	4	6	12	43	86	51	34
Eight graders not proficient in math	0	0	0	0	38	76	38	25
Child and teen deaths per 100,000***	3	6	3	6	32	64	38	25
household head lacks a high school diploma	5	10	8	16	22	44	35	23
Fourth graders not proficient in reading	6	12	6	12	17	34	29	19
Low-birthweight babies	6	12	9	18	13	26	28	19
Teens not in school and not working	4	8	7	14	3	6	14	9
Teens who abuse alcohol or drugs,	-	-	2	4	10	20	12	8
Children not attending preschool	-	-	-	-	1	2	1	1
Total	110		170		359			
Percent of Total that are Statistically Significant	16		24		51			

- means no comparisons were made because the data was the same

Table 4

States ranked on KIDS COUNT Index our Statistical Significance Index

	Rank based on Statistical Significance Index	Rank Based on KIDS COUNT Index
Alabama	43	44
Alaska	16	33
Arizona	45	46
Arkansas	41	41
California	32	40
Colorado	21	22
Connecticut	9	7
Delaware	24	23
Florida	41	38
Georgia	47	42
Hawaii	21	25
Idaho	22	21
Illinois	11	20
Indiana	31	27
Iowa	7	3
Kansas	21	15
Kentucky	41	35
Louisiana	41	47
Maine	15	14
Maryland	15	12
Massachusetts	0	1
Michigan	27	32
Minnesota	7	5
Mississippi	43	50
Missouri	31	29
Montana	31	31
Nebraska	7	10
Nevada	48	48
New Hampshire	1	4
New Jersey	11	8
New Mexico	49	49
New York	24	28
North Carolina	45	34
North Dakota	15	6
Ohio	31	24

	Rank based on Statistical Significance Index	Rank Based on KIDS COUNT Index
Oklahoma	35	39
Oregon	27	30
Pennsylvania	7	16
Rhode Island	21	26
South Carolina	47	45
South Dakota	21	17
Tennessee	37	36
Texas	37	43
Utah	15	11
Vermont	7	2
Virginia	7	9
Washington	21	18
West Virginia	35	37
Wisconsin	9	13
Wyoming	27	19