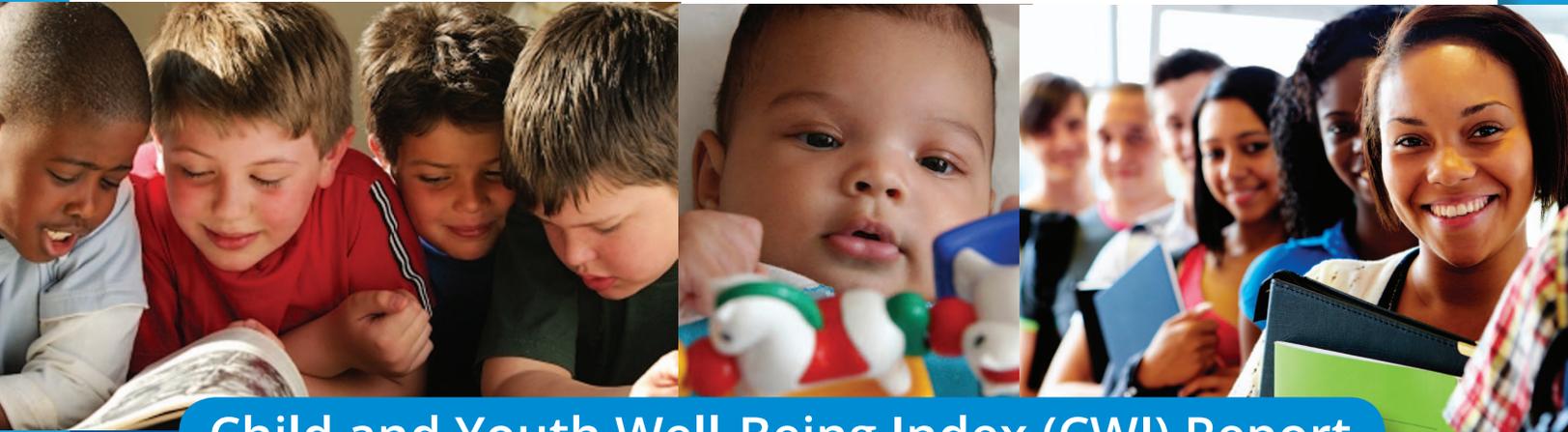


# Duke



## Child and Youth Well-Being Index (CWI) Report

2014

## **Duke Center for Child and Family Policy**

The Duke Center for Child and Family Policy pursues science-based solutions to important problems affecting children and families. The Center emphasizes the bridge from basic research to policy and practice through an integrated system of research, teaching, service and policy engagement. The Center was established at Duke University on July 1, 1999 under the leadership of Kenneth A. Dodge, William McDougall Professor of Public Policy and Professor of Psychology and Neuroscience at Duke University.

### **Kenneth C. Land, Project Coordinator**

Kenneth C. Land, Ph.D., is the John Franklin Crowell Professor of Sociology and Demography at Duke University. He has conducted extensive research on contemporary social trends and quality-of-life measurement, social problems, demography, criminology, organizations, and mathematical and statistical models and methods for the study of social and demographic processes. He is the co-author or co-editor of eight books, more than 150 research articles, and numerous book chapters. Dr. Land has been elected a Fellow of the American Statistical Association, the Sociological Research Association, the American Association for the Advancement of Science, the International Society for Quality-of-Life Studies, and the American Society of Criminology.



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# Executive Summary

## I. Overview

**Each year, the Child and Youth Well-Being Index Project at Duke University publishes a report on a comprehensive measure of how children are faring in the United States.**

The resultant **National Child and Youth Well-Being Index (CWI)** is based on a composite of *28 Key Indicators of Well-Being*, grouped into seven *Quality-of-Life/Well-Being Domains*. These Domains are: Family Economic Well-Being, Safe/Risky Behavior, Social Relationships, Emotional/Spiritual Well-Being, Community Engagement, Educational Attainment, and Health.

### **This year's report includes:**

- calculated values of the CWI for each of the years from 1975, the base year of the Index, to 2011;
- an updated estimate of the CWI for 2012 based on observed values of Key Indicators that have become available since last year's report;
- an initial estimate of the CWI for 2013 based on those observed values of the Key Indicators for 2013 that are currently available, along with projections of the other Key Indicators;

### **Highlights:**

- medium-term (last 20 years) trends in the CWI, its 7 Well-Being Domains and 28 Key Indicators,

### **And reports:**

- estimates of a new Child Suffering Index (CSI), 1975-2013, which reverses the spectrum of the "How are the kids doing?" well-being question addressed by the CWI to focus on the question "To what extent are the kids suffering?"

# Executive Summary (continued)

## II. Major Findings: Trends in the National Child and Youth Well-Being Index, 1975–2013

### The major trends that can be drawn from the 2014 CWI Update include:

- For the years, 2010–2013, the overall composite CWI shows a slow recovery from the Great Recession years of 2008–2009.
- Within this picture of overall short-term slight improvement in child and youth well-being, however, an examination of the 7 Well-Being Domains and 28 Key Indicators of the CWI indicates there is evidence of changes, with some showing improvements and some showing deteriorations.
- The years 2010 through 2013 show slight improvement in Family Economic Well-Being Index. Its values for 2010 (97.95), 2011 (98.25), and 2012 (99.25) are all lower than the base year (1975) value (100). Only in 2013 did this Domain Index pierce the base year value at 102.77, which says that, after 38 years, the overall economic well-being of families with children under age 18 is 2.77 percent better than in 1975.
- Among the Key Indicators in the Family Economic Well-Being Domain Index, the median family income of families with children under age 18 in 2013 dollars has not yet returned to the highs of the previous decade – \$68,580 in 2000 and \$66,494 in 2007 as compared to \$62,161 in 2013. This failure of recent average family income levels to reach the highs of the previous decade helps to explain the high level of concern about the economy in the 2014 Congressional Elections.
- The Safe/Risky Behavior Domain Index continues to show improvement, with a much higher Index value of 150.35 in 2013. Since the 1990s there have been large declines in the Risky Key Indicators in this Domain. This includes: a) teenage births which declined, from 20.1 per thousand females ages 10–17 in 1991 to 6.3 in 2013; b) violent crime victimizations for ages 12–19, which declined, from 121.3 per 1,000 in 1994 to a low of 26.9 in 2010, but since has increased to 49.88 in 2013 – still well below the 62.25 in 2000; and c) teenage smoking (cigarettes) and binge drinking in the last 30 days has declined, although illicit drug use (mainly marijuana) has risen from 21.5 percent in 2006 to 25.5 percent in 2013.
- Children and youth are more connected to their community and social institutions. Considerably higher increases in college graduation rates and PreKindergarten enrollment rates, in addition to modest increases in high school graduation rates, have fueled the continued increase in the Community Engagement Domain.
- There is slight improvement in Educational Attainment over the 37 years of study. The combined index of reading and mathematics test scores has risen from 100 in 1975 to 104.3 in 2012, the last year for which test scores are available. This rise is evident at ages 9 and 13, but has yet to carry over to the age 17 tests.
- The Social Relationships Domain Index increased slightly from 2012 to 2013 due primarily to a continuing decline in the percent of children whose families have moved in the past year, but the percent of children living in single-parent families has remained in the 25 to 28 range since the early 1990s.
- An increasing trend of suicide rates for children and youth ages 10–19 during the late-1980s, as well as a decline in religious participation, led to large declines in the Emotional/Spiritual Well-Being Domain. This decline bottomed at 71.8 in 1991 and was followed by an increase to a level near the 1975 base year value of 100 by 2002. In the 2000s this Domain declined again, due to decreases in spiritual connections for 12th graders. The 2013 Index value for Emotional/Spiritual Well-Being is 84.5, well below the 1975 base year value but above the 1991 value.
- After falling from the mid-1980s to the 2000s to a low point in 2009 primarily due to increases in the percent of children and youth that are obese, the Health Domain Index rose slightly in 2010 to 2013 due to continuing declines in child and youth mortality rates and stabilization and slight declines in the percent that are obese.

## Executive Summary (continued)

### III. Changes in Child Suffering, 1975-2013

The primary objective the CWI is the well-being question: “How are the kids doing?” And the Index is constructed in such a way that its increases are indicative of improvements in well-being while decreases indicate deterioration. **This year’s Report describes our first efforts to examine the extent to which some of the Key Indicators of the CWI can be used to address the reverse of this question, namely, “Is child suffering increasing or decreasing?”**

**Most generally, child suffering refers to barriers to the realization of child well-being and happiness. Suffering includes distress resulting from threat or damage to one’s physical being (i.e., physical suffering), distress originating in one’s cognitive or affective self-identity (mental suffering), and distress cumulating from threat or damage to one’s social identity (social suffering).**

Using 1975 as the base year and 15 of the 28 CWI Key Indicators, we report two variations on a Child Suffering Index (CSI), one that includes the obesity Key Indicator and one that does not. In contrast to the CWI, the CSI is constructed such that an increase in its value is indicative of increased child suffering and a decrease indicates less suffering.

**Because the long-term obesity trend from 1975 has been so large (a quadrupling), we find that it has a very large impact on the CSI if it is included.**

- The result is a CSI series that rises above the base year value of 100 in 1975 very quickly in the 1980s and reaches a peak in 1994 followed by a decline to a low point in the year 2000 and then oscillations in the 2000s and values in the 111 to 113 range in the past few years.
- If the obesity series is not included, then the impacts of the decline in violent crime victimization bring the series down to less than the base year 100 value in the late 1990s. It then stays in 91 to 96 range in the 2000s.

- As expected, there is an inverse correlation between trends in the CWI and the CSI. However, the correlation is not perfect, which implies that there can be some years in which overall child and youth well-being increase at the same time that child suffering increases and vice versa.
- In terms of trends over the 38-year time period, however, both versions of the CSI are consistent with conclusions from the CWI, namely that the years from the mid-1980s to the mid-1990s were years of both low overall child and youth well-being and high child and youth suffering.

In an era of increasing demographic, social, and economic diversity in American society, it is possible for average levels of child and youth well-being, as measured by the CWI, to increase, while, at the same time, child and youth suffering indices and indicators increase. Accordingly, future Annual CWI Reports will report on various Child Suffering Index analyses.

# The National Child and Youth Well-Being Index (CWI), 1975–2013<sup>1</sup>

## I. A Brief Overview

The *Child and Youth Well-Being Index (CWI)*<sup>2</sup> is an evidence-based<sup>3</sup> composite measure of trends over time in the quality of life of America's children from birth up to the 18th birthday.<sup>4</sup> The CWI tracks changes in the well-being of children annually compared to 1975 base-year values.

### The CWI is designed to address the following questions:

- On average, how did child and youth well-being in the U.S. change since 1975?
- Did child well-being improve or deteriorate?
- By approximately how much?
- In which Domains of Well-Being?

The CWI, a composite index based on data from 28 Key Indicators, is computed and updated annually. Observed data on 28 of the 28 Key Indicators are currently available for the year 2011; observations are available on 22 of the 28 Key Indicators for 2012, and on 13 of the 28 Key Indicators for 2013. The remaining Indicators are projected by use of statistical time series models.<sup>5</sup> Accordingly, this report includes the calculated values of the CWI for the years 1975–2011, an update of the CWI estimate for 2012, and an initial estimate of the CWI for 2013.

The objective of the CWI is to give a view of changes over time in the overall well-being of children and youth in the United States.<sup>6</sup> The composite Index, an equally-weighted average<sup>7</sup> of the seven Quality-of-Life/Well-Being Domains, provides a sense of the direction of change in overall well-being, as compared to the 1975 base year of the indicators. For this reason, the focus of the Index is not primarily on specific Indicators, but rather on the way in which they interact and change over time. As a composite

<sup>1</sup> The geographical focus of the CWI in this Report is the U.S., that is, the nation as a whole; the conceptual framework and methodology of the CWI also has been applied at the level of the 50 U.S. states (see O'Hare, William P., Mark Mather, Genevieve Dupuis, Kenneth C. Land, Vicki L. Lamb, and Qiang Fu 2013 "Analyzing Differences in Child Well-Being Among U.S. States," *Child Indicators Research*, 6(June):401-413) and to regions within the states (see Lee, Joonkoo, Vicki L. Lamb, and Kenneth C. Land 2009 "Composite Indices of Changes in Child and Youth Well-Being in the San Francisco Bay Area and the State of California, 1995-2005," *Child Indicators Research*, 2(December):353-374).

<sup>2</sup> In previous years, the Foundation for Child Development, which has funded research and development of the CWI, also managed release of the Annual CWI Report. Accordingly, the CWI previously was known as the Foundation for Child Development Child and Youth Well-Being Index (FCD-CWI). Beginning with the 2014 Report, the release of the CWI is managed by the Center for Child and Family Policy at Duke University. Thus, for consistency with the previous branding of the Index, it now can be termed the Duke Center for Child and Family Policy Child and Youth Well-Being Index (DCCFP-CWI). Since this label is too long, for simplicity we term it the Duke CWI or CWI for short.

<sup>3</sup> The CWI is evidence-based in two senses. First, the Index is based on statistical time series of empirical data on the Key Indicators. Second, the Domains of Well-Being and the choices of the Key Indicators within each Domain are based on decades of studies of well-being, including both quantitative and qualitative research on the well-being of children, adolescents, teenagers, and young adults. See Land, Kenneth C., Vicki L. Lamb, and Sarah Meadows 2012 "Conceptual and Methodological Foundations of the Child and Youth Well-Being Index," Pp. 13-28 in Land, Kenneth C. (ed.), *The Well-Being of America's Children: Developing and Improving the Child and Youth Well-Being Index*. New York: Springer.

<sup>4</sup> Or, as stated using Census/demographic notation, ages 0 to 17 at last birthday. Some of the Key Indicators in the CWI use slightly higher or slightly lower upper bounds, because of the age intervals in which the Indicators are reported. Our analyses, however, have found that the main focus of the CWI—the measurement of trends over time—is not greatly affected by these small differences in upper-age boundaries.

<sup>5</sup> For a description of the autoregressive integrated moving average (ARIMA) models used to project each individual Key Indicator time series, see pp. 70-71 in Land, Kenneth C. (ed.) 2012 *The Well-Being of America's Children: Developing and Improving the Child and Youth Well-Being Index*. New York: Springer.

<sup>6</sup> The basic CWI that is the subject of this report is focused on the population of all American children and youth. As part of our research on child well-being, however, we also have studied time trends in the CWI for children classified by race/ethnicity, family income levels, and immigrant status (see pp. 29-76 and 77-120 of Land, Kenneth C. (ed.), *The Well-Being of America's Children: Developing and Improving the Child and Youth Well-Being Index*. New York: Springer). These studies generally show that, when the overall CWI changes (increases, decreases) by 1 unit, the CWI for children from African-American and Hispanic families and from families in the lowest quintile of the income distribution correspondingly changes (increases, decreases) by 1.5 to 2 units. That is, children from African-American and Hispanic families and from families in the lowest quintile of the income distribution, on average, benefit more than the total child and youth population when the CWI increases and are negatively affected more than the total child and youth population when the CWI decreases. Part of the reason for these multipliers being larger than 1 is that children from white and Asian families and from families in the upper parts of the income distribution generally fare better on the well-being outcomes measured by the CWI and have less to gain during periods of overall increasing child well-being than those from other race/ethnic groups and at lower levels of the family income distribution.

<sup>7</sup> On equal-weighted averages for well-being indices as statistical estimators, see Appendix A.

index of changes over time, the most important information to be found in the CWI is in the direction of change in Indicators and Well-Being Domains: Are the indices up and thus indicative of overall improvements? Down and thus indicative of deterioration? Flat and thus indicative of little or no change?

Children and youth live unique lives; each experiences a range of social conditions at different points. The Index comprises Key Indicators associated with different stages of the first two decades of life. Different Indicators capture children and youth at different stages of life. During the early childhood years, for example, PreKindergarten enrollment is an Indicator of early schooling participation, while the violent crime victimization rate is indicative for ages 12–17.

The overall CWI includes the following 28 Key Indicators, organized into seven Quality-of-Life/Well-Being Domains that have been found in many social science studies to be related to an overall sense of subjective well-being or satisfaction with life.<sup>8</sup> Each Domain represents an important area that affects quality of life:

### Family Economic Well-Being Domain<sup>9</sup>

1. Poverty Rate (All Families with Children Ages 0–17)
2. Secure Parental Employment Rate (All Families with Children Ages 0–17)
3. Median Annual Income (All Families with Children Ages 0–17)
4. Rate of Children with Health Insurance (All Families with Children Ages 0–17)

### Safe/Risky Behavior Domain<sup>10</sup>

1. Teenage Birth Rate (Ages 10–17)
2. Rate of Violent Crime Victimization (Ages 12–19)<sup>11</sup>
3. Rate of Violent Crime Offenders (Ages 12–17)
4. Rate of Cigarette Smoking (Grade 12)<sup>12</sup>
5. Rate of Binge Alcohol Drinking (Grade 12)
6. Rate of Illicit Drug Use (Grade 12)

### Social Relationships Domain

1. Rate of Children in Families Headed by a Single Parent (All Families with Children Ages 0–17)
2. Rate of Children Who Have Moved Within the Last Year (Ages 1–17)

### Emotional/Spiritual Well-Being Domain:

1. Suicide Rate (Ages 10–19)<sup>13</sup>
2. Rate of Weekly Religious Attendance (Grade 12)
3. Percent Who Report Religion as Being Very Important (Grade 12)

<sup>8</sup> See footnote 2. Some Key Indicators can be assigned to more than one Well-Being Domain, but, for purposes of Domain-Specific and Overall Index construction, each is included in only one Domain.

<sup>9</sup> The label “Material Well-Being” has also been used for this Domain.

<sup>10</sup> The label “Safety/Behavioral Concerns” has also been used for this Domain.

<sup>11</sup> The upper age limit of 19 is used for this indicator, as the data series for this Key Indicator are not available for ages 12–18 separately.

<sup>12</sup> The Monitoring the Future (MTF) Project is the source of time series data for five of the Key Indicators (Rates of Cigarette Smoking, Binge Alcohol Drinking, and Illicit Drug Use in this Domain, as well as Rate of Weekly Religious Attendance and Percent Who Report Religion as Being Very Important in the Emotional/Spiritual Well-Being Domain). The MTF Project originally began as the High School Senior Survey in 1975, with surveys of national samples of seniors (modal age 18) in U.S. high schools taken in the spring of the academic school year. Samples of 8th graders (modal age 14) and 10th graders (modal age 16) were added in 1991. In studies of time series of MTF data on these five Key Indicators, we have found substantial covariation over time among the 8th, 10th, and 12th grade responses. For this reason, and because the 12th grade data extend back to the principal base year of the CWI Project, 1975, we use the 12th grade time series as data for these five Key Indicators.

## Community Engagement Domain<sup>14</sup>

1. Rate of Persons Who Have Received a High School Diploma (Ages 18–24)<sup>15</sup>
2. Institutionally Disconnected Youth Rate (Ages 16–19)<sup>16</sup>
3. Rate of PreKindergarten Enrollment (Ages 3–4)
4. Rate of Persons Who Have Received a Bachelor’s Degree (Ages 25–29)<sup>17</sup>
5. Rate of Voting in Presidential Elections (Ages 18–24)<sup>18</sup>

## Educational Attainment Domain

1. Reading Test Scores (Averages of Ages 9, 13, and 17)
2. Mathematics Test Scores (Average of Ages 9, 13, and 17)

## Health Domain

1. Infant Mortality Rate
2. Low Birth Weight Rate
3. Mortality Rate (Ages 1–19)
4. Rate of Children with Very Good or Excellent Health (Ages 0–17, as reported by parents)

5. Rate of Children with Activity Limitations due to Health Problems (Ages 0–17, as reported by parents)
6. Rate of Obese Children and Adolescents (Ages 6–19)

Appendix A briefly describes the Methods of Index Construction for the CWI. Sources for time series data on the Key Indicators are presented in Appendix B.<sup>19</sup>

<sup>13</sup> The upper age limit of 19 is used for Suicide Rate (Emotional/Spiritual Domain) as well as Mortality Rate and Rate of Obese Children and Adolescents (Health Domain), as these data series are not available for an upper age limit of 18.

<sup>14</sup> This Domain includes participation in educational, economic, and political institutions. The labels “place in community” and “community connectedness” also have been used for this Domain.

<sup>15</sup> Since some youth are delayed in completing the requirements for high school diplomas or General Education Equivalent (GED) degrees, a higher upper age limit is used for this Key Indicator series.

<sup>16</sup> The rate of those ages 16 to 19 who are not working and not in school. The upper age limit of 19 is used for this Indicator, as the data series is not available for an upper age limit of 18.

<sup>17</sup> Similarly to the use of a higher age limit for the high school diploma Key Indicator, a higher age limit is used for this series, in order to index trends in commitment to, and participation in, higher education institutions.

<sup>18</sup> Since the legal voting age for presidential elections is 18, ages 18–24 are used to represent trends in youth voting behavior.

<sup>19</sup> Those Key Indicators that do not directly measure outcomes for children and youth are proxy Indicators of the same. For instance, data are not available on direct measure of the poverty status of children, only on the poverty status of families that have children up to age 18. However, it is not strained to infer that a child living in a family whose income falls below the poverty line has a poverty-level economic well-being. Thus, the poverty status of the family is used as a proxy Indicator for the poverty status of the child.

## II. Annual Update of the Overall National Child and Youth Well-Being Index (CWI)

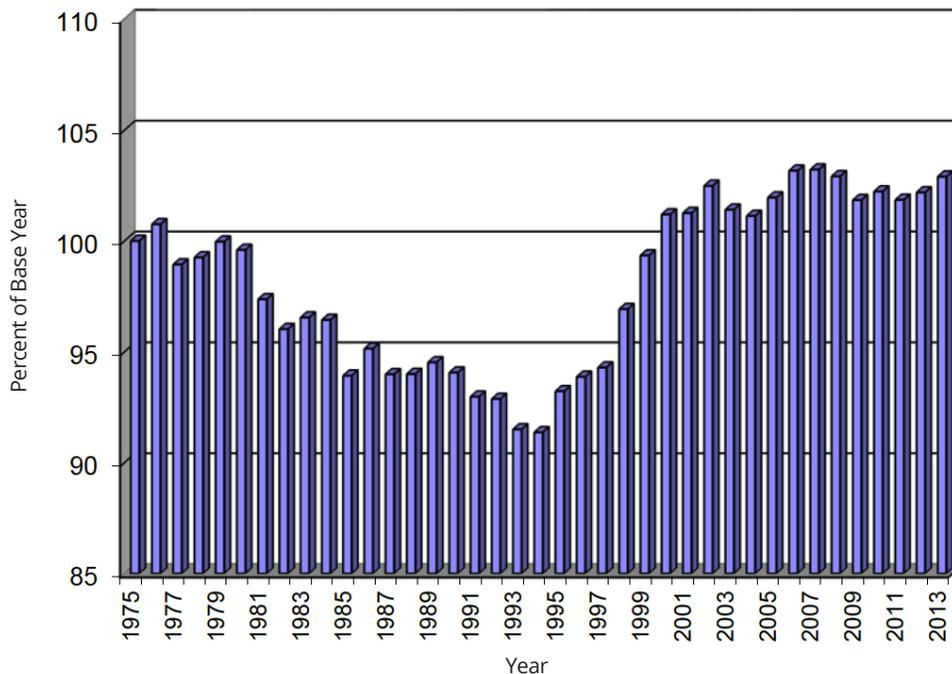
Each year, we report the updated values of the overall CWI through the most recent year. **Figure 1 charts annual percentage changes since 1975 in the overall composite CWI, with the value of the CWI in the base year 1975 set equal to 100.**<sup>20</sup> For all Key Indicators and Domain Indices of the CWI, a numerical value above 100 indicates an improvement in overall child and youth well-being, as compared to 1975 base-year values. For example, an Index value of 102 would indicate, on average across all Key Indicators and Domains, a two percent improvement in well-being compared to the values of the Indicators and Domains in 1975, whereas an Index value of 97 would indicate a deterioration of three percent.

Trends in the overall, composite CWI give a sense of changes in child and youth well-being both in the short-term (the last few years) and the long-term (since the base year 1975). The latter time frame yields a historical perspective, as values of the Index for the late 1970s and early 1980s now pertain to individuals who were children at that time but are part of today's parental cohorts

### Long-, Medium-, and Short-term Changes in the CWI, 1975–2013

Over the long-term of 38 years (1975–2013), the CWI shows periods of both deterioration and improvement. Through the late 1970s, the CWI oscillated at levels near the base year value of 100; then shows a decline beginning in 1980 and ending in 1994 with a value of 91.37. Previous annual CWI reports have shown the roots of this decline in the economic recession of the early 1980s (which negatively affected the Family Economic Well-Being Domain); in changing family structures (toward more single-parenting); in an upturn in risky behavior (especially increases in teenage childbearing, illicit drug use, and violent crime victimization and offending); and in the beginnings of the trend towards an increasing prevalence of obese children (which negatively impacted the Health Domain).

In the medium-term of the past 20 years from 1994 to 2013, the CWI increased through the late 1990s, reaching a peak of 102.49 in 2002. Previous annual CWI reports have shown that this period of increase was associated with the rapidly expanding economy of the late-1990s, the stabilization of family structures, and downturns in risky behavior.



**Figure 1** Child and Youth Well-Being Index, 1975–2013

<sup>20</sup> The specific annual numerical values of the overall CWI, from which Figure 1 is constructed, are provided in Appendix C.

Since 2002, the Index has oscillated at or near this peak, with values of 101.85 in 2011, 102.19 in 2012, and an initial estimate of 102.90 for 2013. The CWI since 2002 exhibits the imprint of the economic expansions and contractions of the first decade of the 21st century, especially the Great Recession of 2008–2009.

As evident from Figure 1, the long-term trend in the CWI, taking into account the improvements in some Well-Being Domains and Key Indicators and deteriorations in others, yields values of the Index in the most recent years 2011, 2012, and 2013 slightly above the 100 base year value. In other words, the predominant long-term trend in the CWI is indicative of a small overall improvement in 38 years. By comparison, medium-term changes in the CWI over the past 20 years show substantial improvements, from 91.37 in 1994 to 102.90 in 2013.

Zooming in on short-term changes in the CWI, the past six years 2008–2013, were a turbulent time for our nation, with the impacts of the Great Recession in 2008–2009 and the slow recovery in 2010–2013. For these most recent years, Figure 1 shows that:

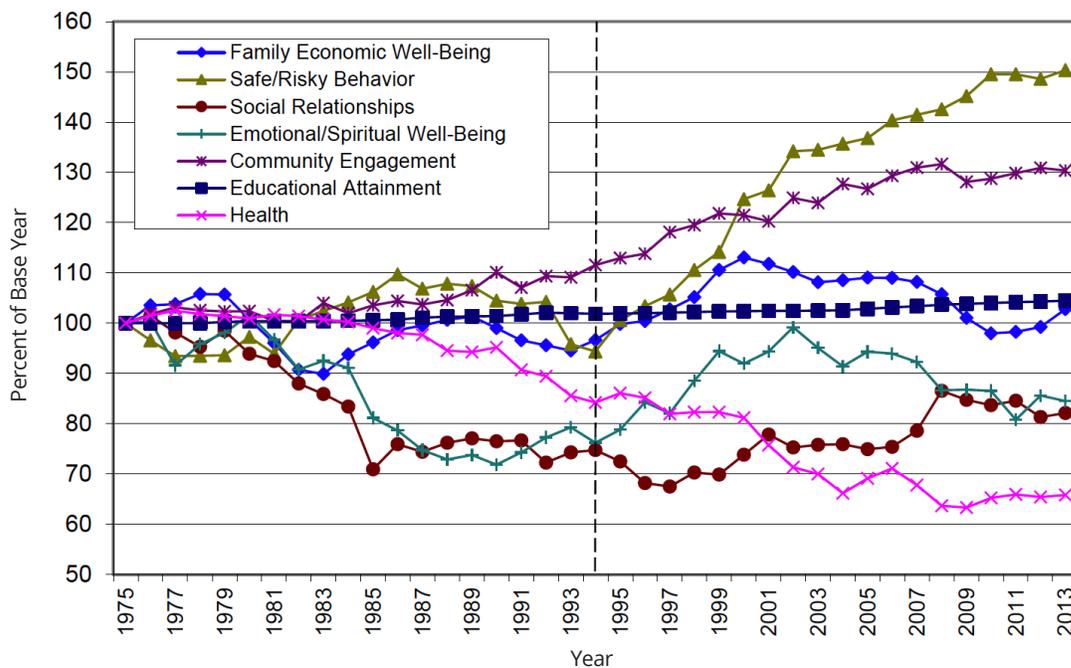
- The CWI decreased by 1.34 percent, from 103.22 in 2007 to 101.84 in 2009, the years of impact of the Great Recession.
- The CWI then is 102.23 for 2010, the last year for which data are available on all 28 Key Indicators.

- In the following years, the CWI shows partially projected values of 101.85 in 2011, 102.19 in 2012 and 102.90 in 2013.<sup>21</sup>

In sum, these recent annual numerical changes in the CWI indicate that the declines of 2008–2009 did not continue in the four most recent years. However, the annual changes for 2010 through 2013 are not statistically significant and are indicative of small short-term improvements in overall child and youth well-being.

### III. Medium-Term Changes in the CWI Well-Being Domains and Their Key Indicators, 1994-2013

The CWI can alert us to recent changes and emerging trends in overall child and youth well-being. We also can study both long-term and medium-term trends and cycles in the seven Well-Being Domains and their component Key Indicators. This section of the report focuses on these trends, especially in the medium-term since the year 1994. Regarding long-term changes, **Figure 2 displays annual percentage changes since 1975 in the seven CWI Well-Being Domains, with the value of each series in the base year 1975 set equal to 100.**



**Figure 2 Domain-Specific Summary Indices, 1975-2013**

21 For 2012, 6 of the 28 Key Indicators are projected; for 2013, 15 of the 28 Key Indicators are projected. See Appendix A, Table A-1.

Focusing on medium-term trends<sup>22</sup> over the past 20 years, 1994 to 2013, the seven Well-Being Domain Indices in Figure 2 show diverse patterns:

- the Family Economic Well-Being Domain Index cycles up and down with expansions and contractions in the national economy;
- the Safe/Risky Behavior and Community Engagement Indices show substantial improvements;
- the Educational Attainment Index shows slight increases;
- two Domain Indices with long-term declines, Social Relationships and Emotional/Spiritual Well-Being, have slight medium-term improvements and subsequent declines; and
- one Domain Index with long-term declines, Health, further declined in the medium-term.

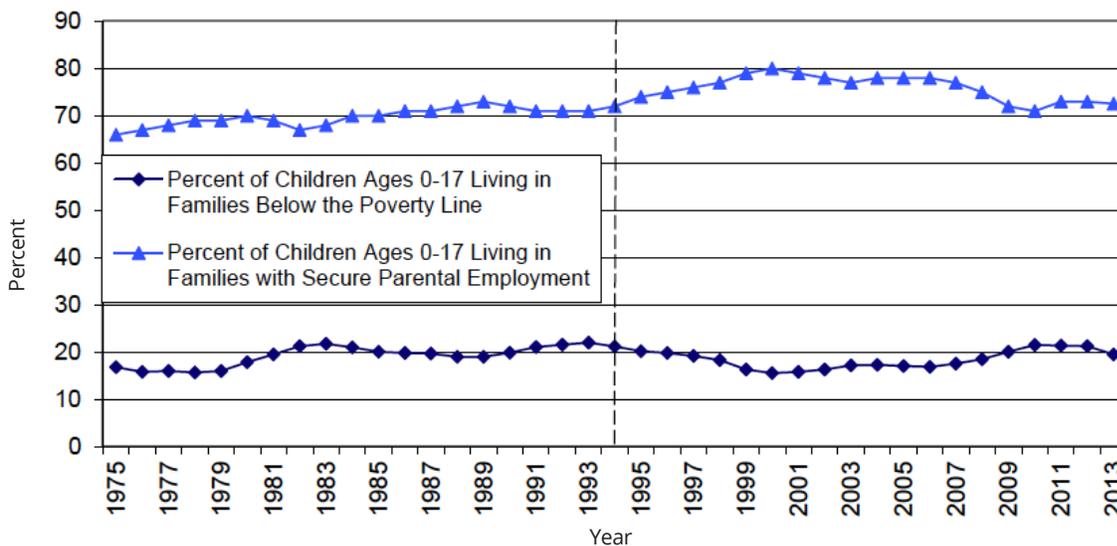
The following paragraphs discuss trends in the Key Indicator components that relate to these medium-term trends in the Domain Indices.

### Family Economic Well-Being

As indicated in Section I, the Family Economic Well-Being Domain Index is calculated from four Key Indicator time series, three of which covary with macroeconomic expansions and contractions.

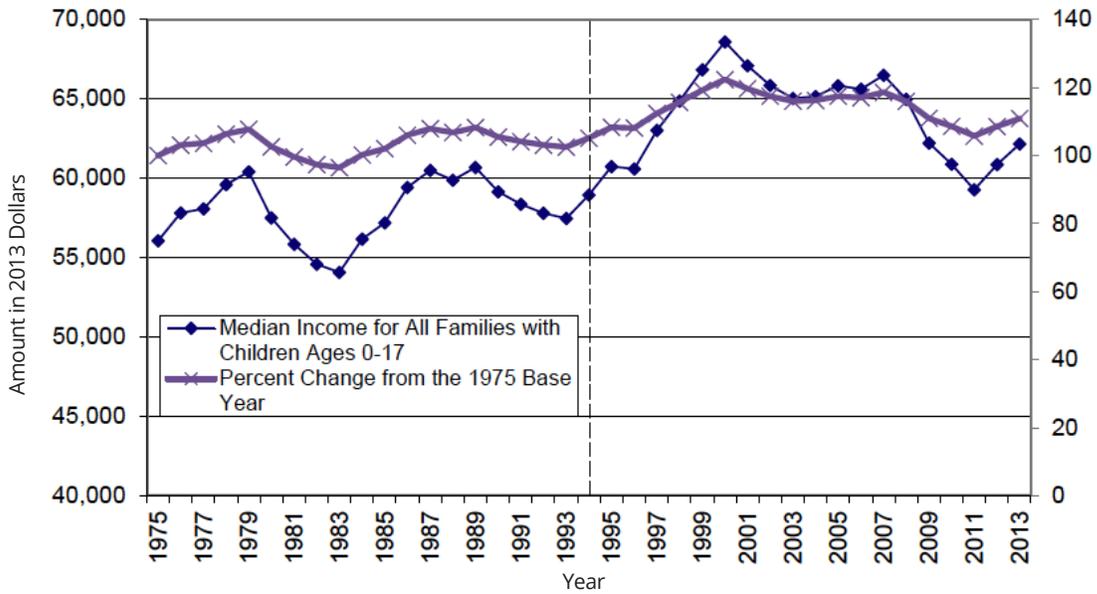
Figure 3 contains two of these – the Poverty Rate (All Families with Children Ages 0–17) and the Secure Parental Employment Rate (All Families with Children Ages 0–17) – and the third – Median Annual Family Income (All Families with Children Ages 0–17) – is shown in Figure 4.

Of these three time series, the correlation with economic cycles is strongest for Median Family Income for families with children. In addition, it can be seen that, after economic recessions, upturns in Median Family Income lags behind economic recovery by two to four years. Focusing on medium-term trends, the 1994 value of Median Family Income had a small increase after falling in the wake of the 1990-1991 economic recession. Similarly, after falling during the 2001-2002 recession, Median Family Income rose slightly in 2005, and after falling from 2008 to 2011 in the wake of the Great Recession, the 2012 and 2013 values of Median Family Income increased slightly. The 2013 value also is 11 percent above the 1975 base year value of this Key Indicator, as compared to 5 percent above the base year value in 1994. In terms of this medium-term time period of 20 years from 1994 to 2013, however, Median Family Income peaked in the year 2000 at 22 percent above the 1975 base year value. Thus, compared to the best historical experience within the memory of many of today’s families, Median Family Income currently is relatively low – which may account for why families feel that the impact of the Great Recession on their incomes has not disappeared.



**Figure 3** Poverty and Secure Parental Employment Rates, 1975-2013, with Projection for 2013 for Secure Parental Employment

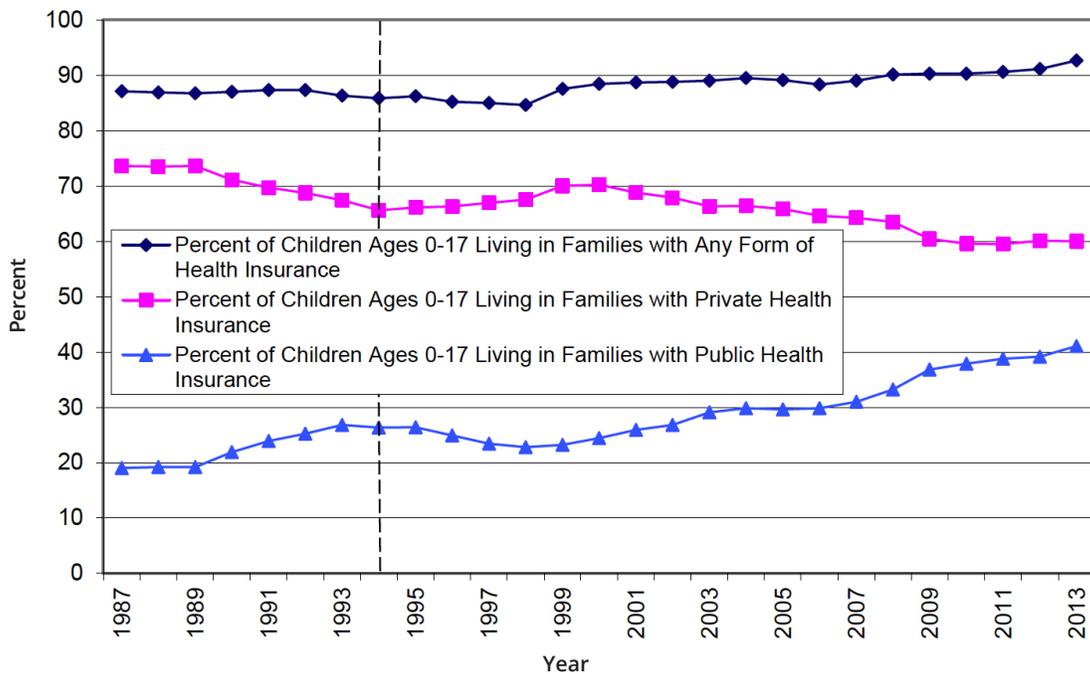
<sup>22</sup> Since this year’s Report focuses on medium-term changes (1994-2013) in the CWI, its Well-Being Domains, and Key Indicators, for assistance in visually identifying this time period, a vertical dashed line is inserted in Figure 2 and subsequent figures at the year 1994.



**Figure 4** Median Family Income in Families with Children in 2013 Dollars, 1975-2013, and Percent Change from 1975

The story is much the same for medium-term changes in the Poverty Rate and the Secure Parental Employment Rate. That is, the value of the Poverty Rate for 2013 (19.5 percent) is below its values in 1994 (21.2 percent) but not in 2000 (15.6 percent), and the value of the Secure Parental Employment Rate in 2012 (73 percent) and (projected for) 2013 (72.5 percent) is above its value in 1994 (72 percent) but not that of 2000 (80 percent).

The fourth Key Indicator time series in the Family Economic Well-Being Domain is the Rate of Children with Health Insurance (All Families with Children Ages 0–17). Figure 5 contains this Key Indicator time series for the years for which it is available, 1987-2013, together with charts showing the corresponding trends in private and public insurance coverage. With respect to medium-term changes, this Key Indicator has improved from 85.8 percent in 1994 to 92.7 percent in 2013, and the charts show that this increase is due to an expansion of public sector health insurance.



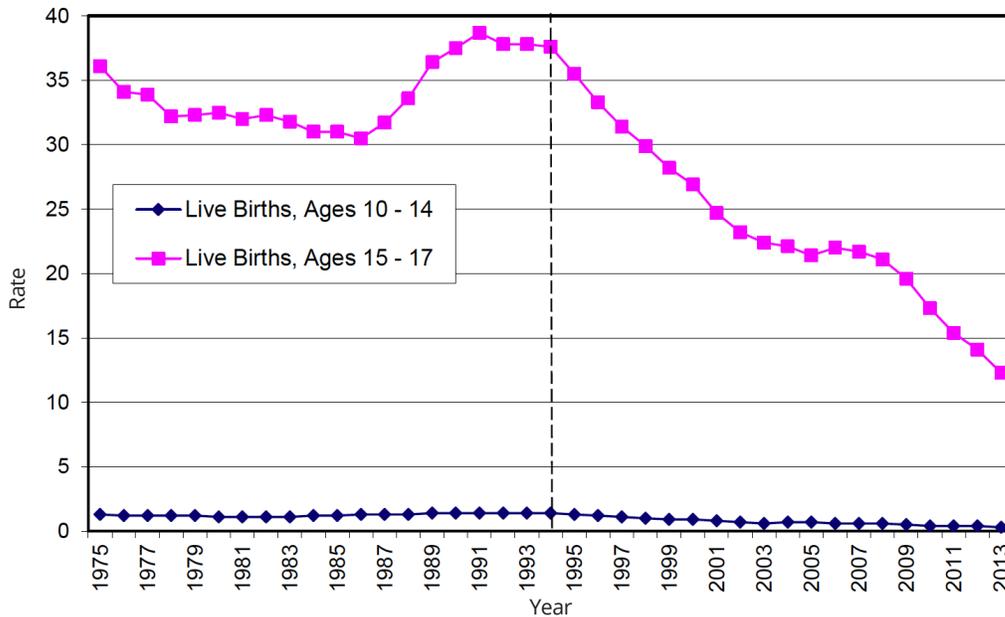
**Figure 5** Rates of Children Living in Families with Health Insurance, 1987-2013

## Safe/Risky Behavior and Community Engagement Domains

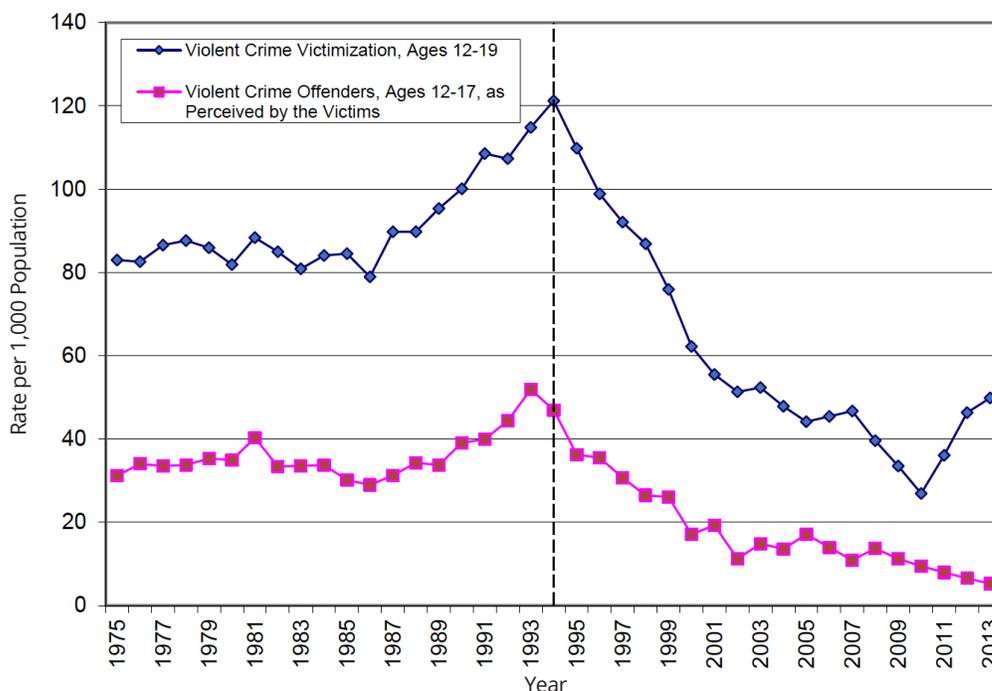
Two of the CWI Well-Being Domains that show large improvements in Figure 2 relative to their base year (1975) values are the Safe/Risky Behavior and Community Engagement Domain Indices, with the former having a value in 2013 some 50 percent above that of the base year and the latter being 30 percent higher in 2013 than in 1975.

As noted in Section I, the Safe/Risky Behavior Domain Index is composed of time series on six Key Indicators: the Teenage Birth

Rate (Ages 10–17), the Rate of Violent Crime Victimization (Ages 12–19), the Rate of Violent Crime Offenders (Ages 12–17), the Rate of Cigarette Smoking (Grade 12), the Rate of Binge Alcohol Drinking (Grade 12), and the Rate of Illicit Drug Use (Grade 12). Of these six Key Indicators, the three with the strongest medium-term trends from 1994 to 2013 driving the increase in the Safe/Risky Behavior Domain Index are the Teenage Birth Rate (broken down into age groups 10-14 and 15-17 in Figure 6) and the Violent Crime Victimization and Offending Rates. Figure 6 displays the time series for the former indicator and Figure 7 the latter two.



**Figure 6** Teenage Birth Rates (Number of Live Births per 1,000 Females in Age Group) , 1975 -2013



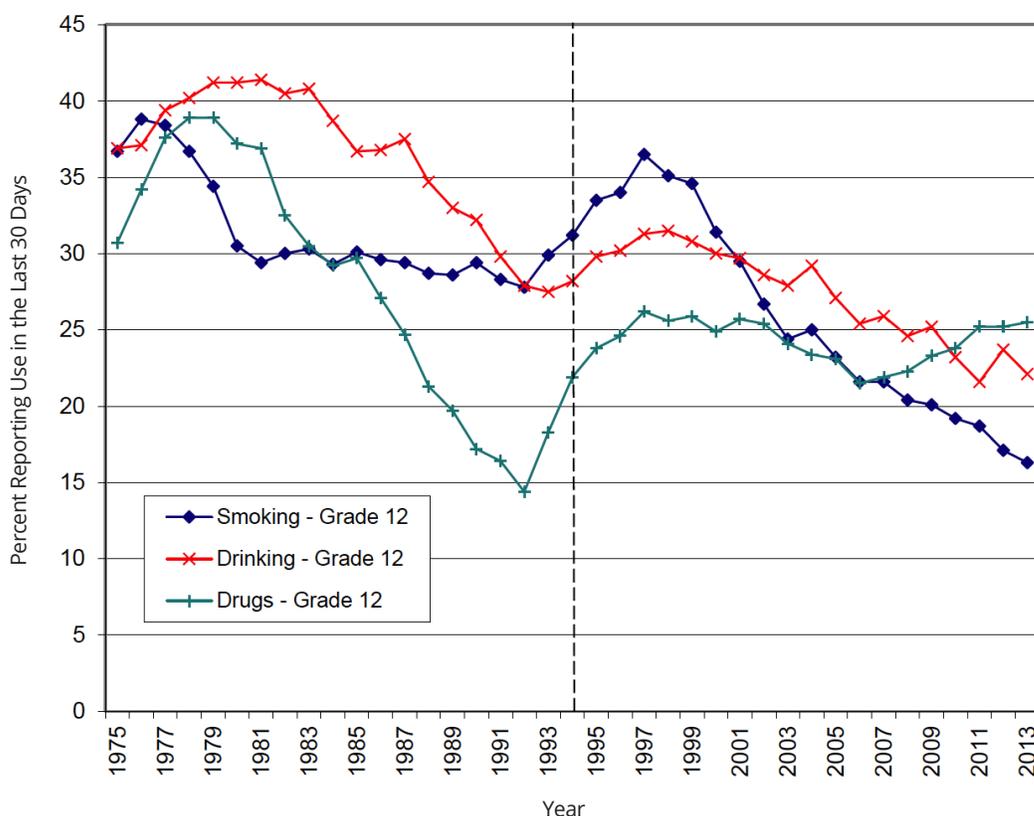
**Figure 7** Violent Crime Victimization and Offender Rates, 1975-2013, with Projections for Offender Rates in 2011-2013

Focusing on medium-term trends since 1994 in the Teenage Birth Rate time series in Figure 6, the rate for ages 15-17 in 1994 was 37.6 per 1,000 females in this age group as compared to 12.3 in 2013, that is, less than one-third of the 1994 rate. The corresponding rates for the age 10-14 age group are 1.4 in 1994 and 0.3 in 2013, again a drop of over two-thirds across the 20-year time period. These 1994 rates were at the high plateau of teenage birth rates during the surge from 1987 to 1997. Even compared to the ages 15-17 low rate of 30.5 in 1986, however, the corresponding rate in 2013 is some 60 percent lower.

By comparison, the 1994 Adolescent-Teenage Violent Crime Victimization Rate of 121.25 per 1,000 population ages 12 to 19 is the long-term peak in the entire time series. The medium-term low point

in this Key Indicator is 26.90 in 2010 with an increase since to 49.88 in 2013, which is very close to its pre-Great Recession value in 2007 of 46.75. That is, the Victimization Rate time series shows a medium-term decline from 1994 to 2013 of 59 percent. The Adolescent-Teenage Violent Crime Offender Rate ages 12 to 17 time series, where age is as perceived by adolescent-teenage violent crime victims, has corresponding values of 47.0 per 1,000 in 1994 and 9.5 in 2010, the last year for which it is available, an 80 percent decline.

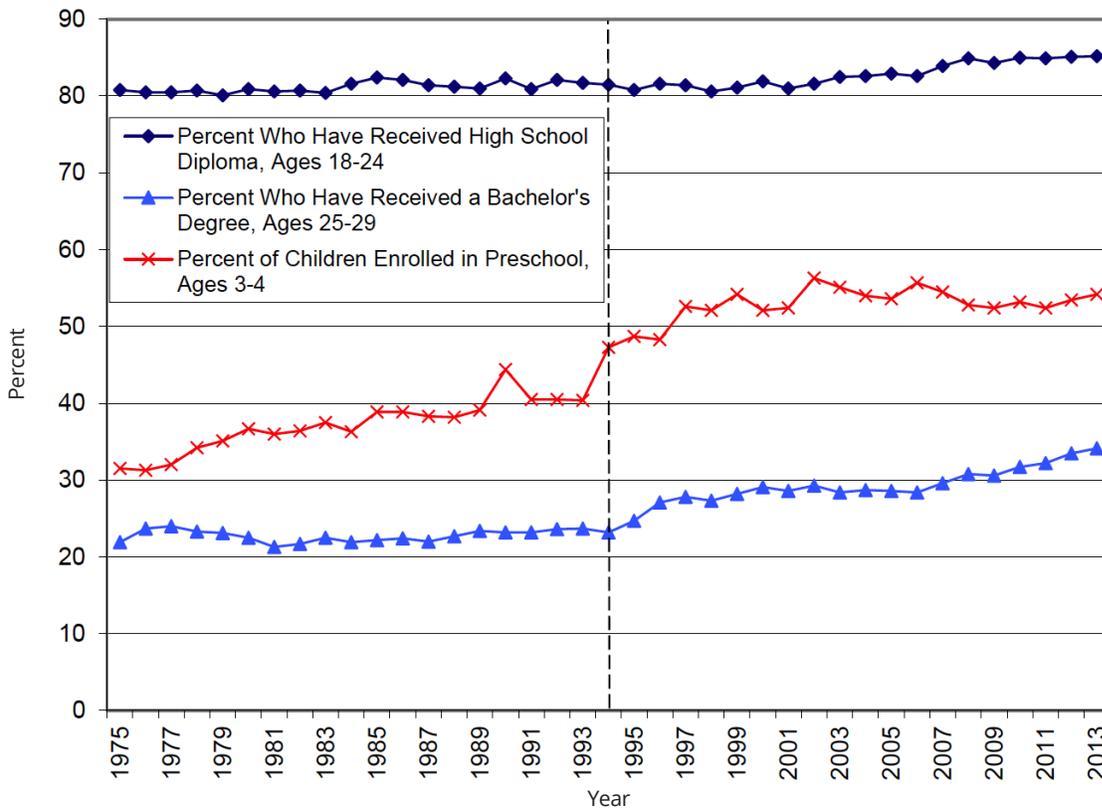
The three remaining Key Indicators in the Safe/Risky Behavior Domain are the Rates of Cigarette Smoking, Binge Alcohol Drinking, and Illicit Drug Use, all for 12th Graders. Time series of these indicators are displayed in Figure 8.



**Figure 8 Twelfth Grade Smoking, Binge Drinking, and Drug Use, 1975-2013**

In comparison to the teenage child bearing and violent crime Key Indicator time trends, the cigarette smoking, binge drinking, and illicit drug use time series show medium-term peaks around 1997, that is, about 3 to 6 years later. The medium-term trends in these series are down for smoking from 36.5 percent in 1997 to 16.3 percent in 2013, a 45 percent decline, and for binge drinking from 31.5 percent in 1998 to 22.1 percent in 2013, a

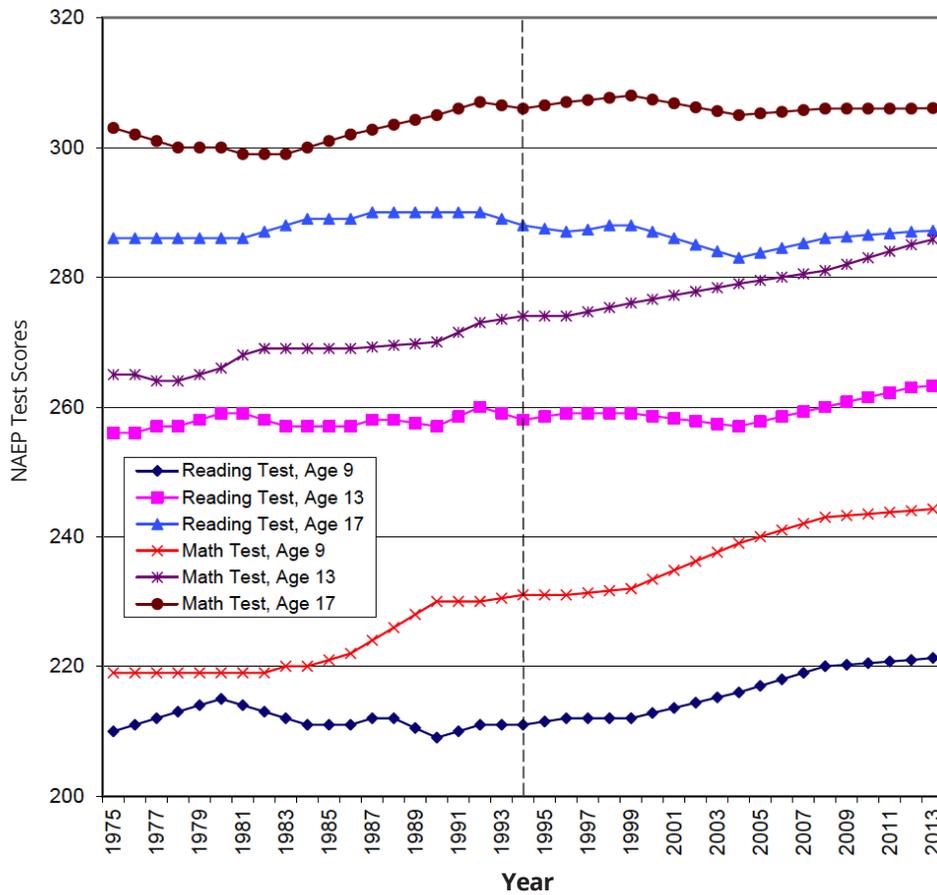
30 percent decline. On the other hand, the use of illicit drugs, mostly marijuana, declined from 26.2 percent in 1997 to 21.5 percent in 2006 and has since increased to 25.5 percent in 2013 as societal attitudes and regulations on marijuana have changed in the past decade.



**Figure 9** Enrollment and Schooling Graduation Rates, 1975-2011, with Projections in 2012 and 2013

The medium-term trend in the Community Engagement Domain Index in Figure 2 increases from 111.57 in 1994 to 130.37 in 2013, a 17 percent increase. Figure 9 displays time trends in the enrollment and school graduation Key Indicators of this Well-Being Domain. While the medium-term trends in these indicators are not as strong as those of the Safe/Risky Behavior Domain, nonetheless all three of the series show

substantial increases from 1994 to 2011, with the percent ages 3-4 enrolled in Preschool having trended up earlier in the time period and flattened since 2002 while the percentages attaining High School Diplomas or Bachelor's degrees have trended up more strongly in the last decade.



**Figure 10 National Assessment of Educational Progress Test Scores for Reading and Mathematics Skills, with Projections in 2013**

### Educational Attainment

The Educational Attainment Well-Being Domain Index time series in Figure 2, which consists of averages of ages 9, 13, and 17 Reading and Mathematics National Assessment of Educational Progress (NAEP) Test Scores, is 4.32 percent higher in 2012 than in the base year 1975. Figure 10 displays the time series for each of these test scores for each of the three age groups.<sup>23</sup>

It is evident from the time series graphs in Figure 10 that most of the medium-term improvements in the NAEP test scores since 1994 have been for age 9 (modal grade 3) and age 13 (modal grade 8) students. The age 17 (modal grade 12) scores have flat-lined during this 20 year time period.

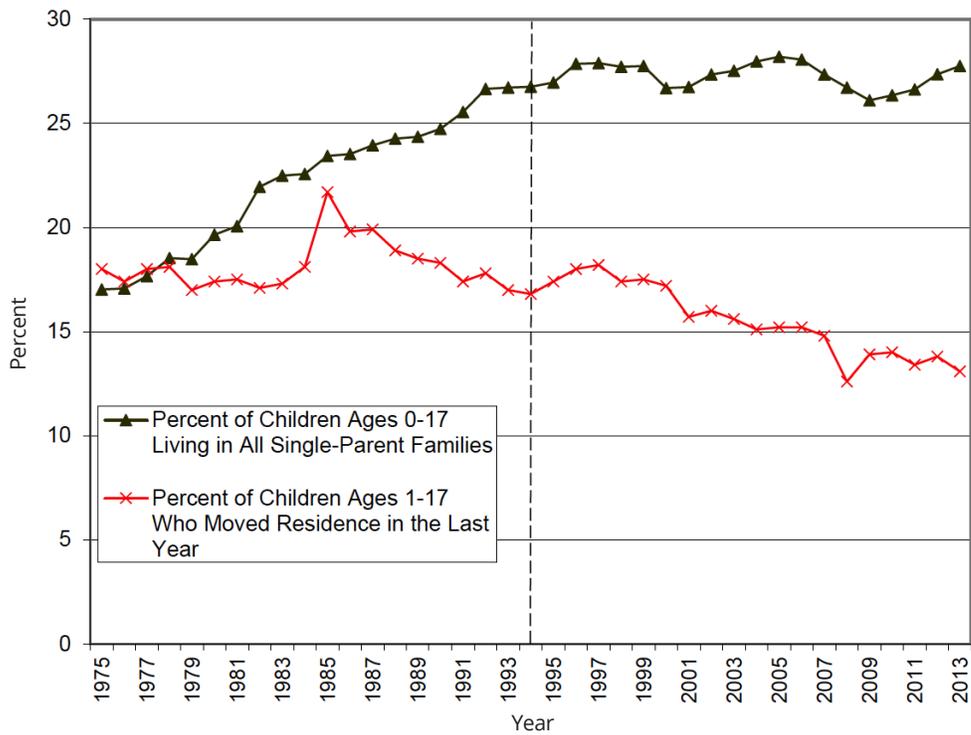
### Social Relationships and Emotional/Spiritual Well-Being

The time series of the CWI Well-Being Domain Indices graphed in Figure 2 show that Social Relationships and Emotional/Spiritual Well-Being Domains declined substantially in the years 1975 to 1993 but then have stabilized and shown some improvements in the medium-term years from 1994 to 2013.

As noted in Section I, the Social Relationships Domain Index is comprised of two Key Indicators – the Rate of Children in Families Headed by a Single Parent (All Families with Children Ages 0-17) and the Rate of Children Who Have Moved within the Last Year (Ages 0-17). The objective of this Domain Index is to capture trends in the family structures and neighborhoods in which children are embedded, as these affect the stability of their social relationships with adults and other children. Figure 11 contains the time series for these two Key Indicators.

In Figure 11, the impact of the 2001-2002 and 2008-2009 economic recessions on reducing the percent of children living in single-parent families is evident. With economic recoveries from recessions, however, deferments in parental separation/divorce are reduced such that this Key Indicator series increases. As regards medium-term trends, this Key Indicator was at 26.75 percent in 1994 and 27.75 percent in 2013, a 3.74 percentage increase. This slight further deterioration in parental structures was more than compensated by a slowdown in family residential mobility from 16.8 percent in 1994 to 13.1 percent in 2013, a 2.2 percent change. The impact of these changes on the overall Social Relationship Domain Index is the improvement shown

<sup>23</sup> The National Assessment of Educational Progress is administered periodically and the Reading and Mathematics Tests sometimes are administered in different years. The result is that actual test scores for the Reading Test are available for 1975, 1980, 1984, 1988, 1990, 1992, 1994, 1996, 1999, 2004, 2008, and 2012, while actual scores for the Mathematics Test are available for 1975, 1978, 1980, 1982, 1986, 1990, 1992, 1994, 1996, 1999, 2004, 2008 and 2012. For years between the administered tests, the CWI

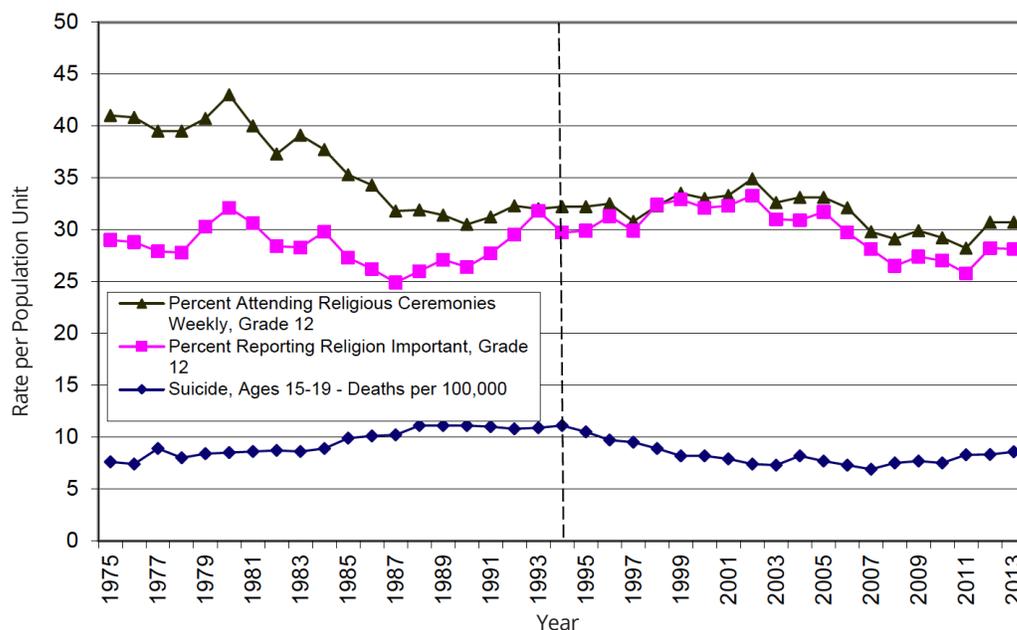


**Figure 11** Percent of Children, Ages 0-17, Living in Single-Parent Families and Percent Who Moved Residence in the Past Year, Ages 1-17, 1975-2013

in Figure 2 from 74.74 in 1994 to 82.11 in 2013. Again, however, it should be noted that changes in both of the time series in Figure 11 have slowed considerably in the most recent 20-year time period as compared to the period from 1975 to 1993. That is, rates of increase in both the prevalence of fragile family structures and residential mobility for families with children have slowed in the more recent time period.

The Emotional/Spiritual Well-Being Domain Index is comprised of three Key Indicators, the Suicide Rate (Ages 10–19), the Rate

of Weekly Religious Attendance (Grade 12), and the Percent Who Report Religion as Being Very Important (Grade 12). Suicides in the adolescent and teenage years are considered to be events indicative of extreme emotional distress. By contrast, religious participation is considered to provide cultural meaning to life and to be protective against emotional distress. The objective of the Emotional/Spiritual Domain Index is to capture trends in these Key Indicators. Figure 12 contains the relevant time series.



**Figure 12** Suicide Rates, Religious Attendance and Attitudes, 1975-2011, with Projections of the Suicide Rate for 2012 and 2013

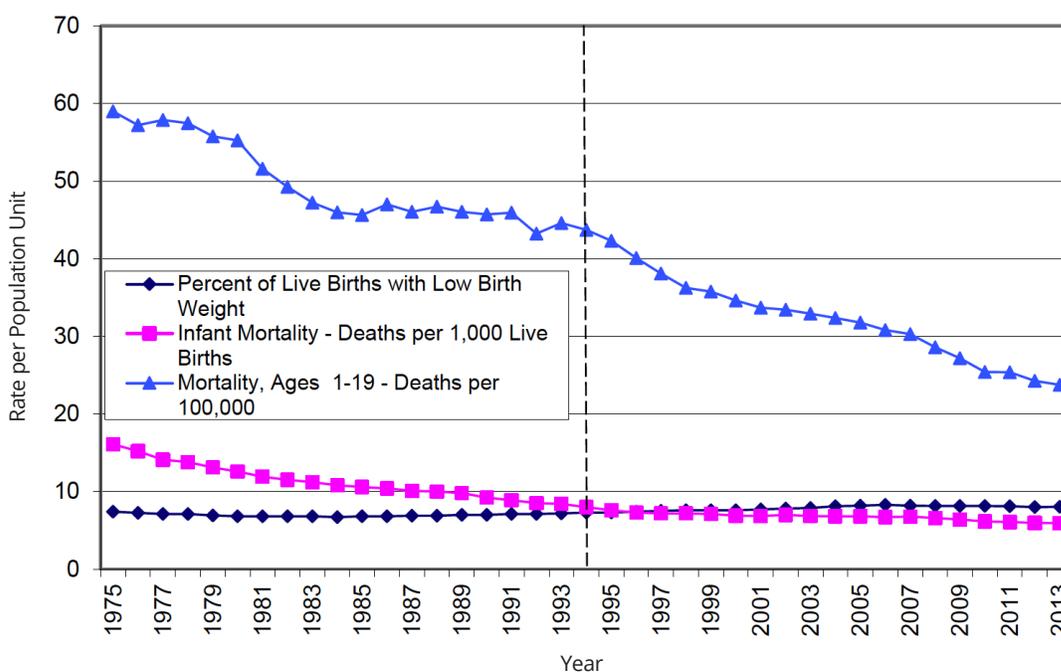
Although the Emotional/Spiritual Domain Index includes the average suicide rate for ages 10-19, the time series graphed in Figure 12 is for ages 15-19, as the rate for this age group is larger than for the younger age group and shows more variation over time. The medium-term trend in this suicide rate declined from 11.1 per 100,000 population ages 15-19 in 1994 to 8.3 in 2011, the last year for which it is available, a 25 percent decline. This Key Indicator time series also exhibits an elevated plateau from 1984 to 1994, a time period as noted above of increased teenage childbirth and violent crime victimization. By comparison, the medium-term trends from 1994 to 2013 in the weekly religious participation and religion importance time series are slight declines.

## Health

The CWI Domain Index time series graphed in Figure 2 showed the Health Domain as having the largest long- and medium-term declines. The Health Domain Index contains six Key Indicators: the Infant Mortality Rate, the Low Birth Weight Rate, the Mortality Rate (Ages 1-19), the Rate of Children with Very Good or

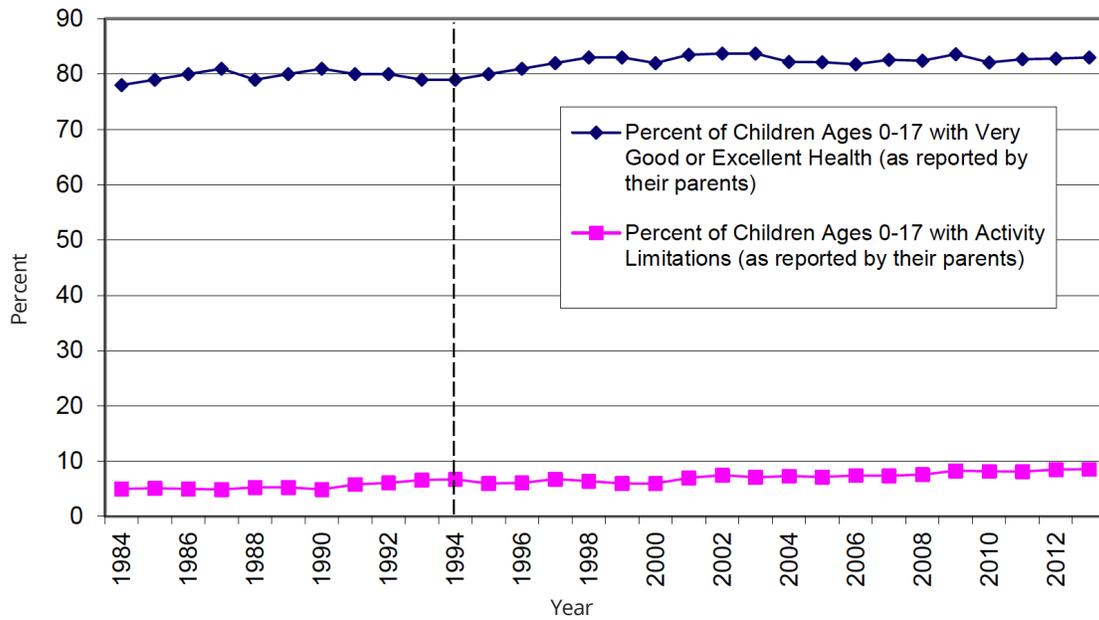
Excellent Health (Ages 0-17, as reported by parents), the Rate of Children with Activity Limitations due to Health Problems (Ages 0-17, as reported by parents), and the Rate of Obese Children and Adolescents (Ages 6-19). Figure 13 graphs the mortality and low birth rate Key Indicator time series. Figure 14 displays time series for the parental reports on their children's health and activity limitations statuses. And Figure 15 shows the obesity rate time series.

It can be seen that the mortality rates for ages 1-19 in Figure 13 have declined substantially both in the long-term and in the medium-term from 1994 to 2013 – going from 43.7 per 100,000 in 1994 to 25.38 in 2011, a 42 percent decline. This statement also applies to the infant mortality rate which was 8.0 per 1,000 live births in 1994 and 5.9 in 2013. On the other hand, the medium-term trend in the percent of live births with low birth weight increased slightly from 7.3 in 1994 to 8.0 in 2013. Previous annual CWI reports have noted the linkage of this Key Indicator to an increase in the prevalence of multiple births associated with deferred childbirth and the use of fertility drugs.



**Figure 13** Mortality and Low Birth Weight Rates, 1975-2013, with Projections for Ages 1-19 Mortality Rates, 2012-2013

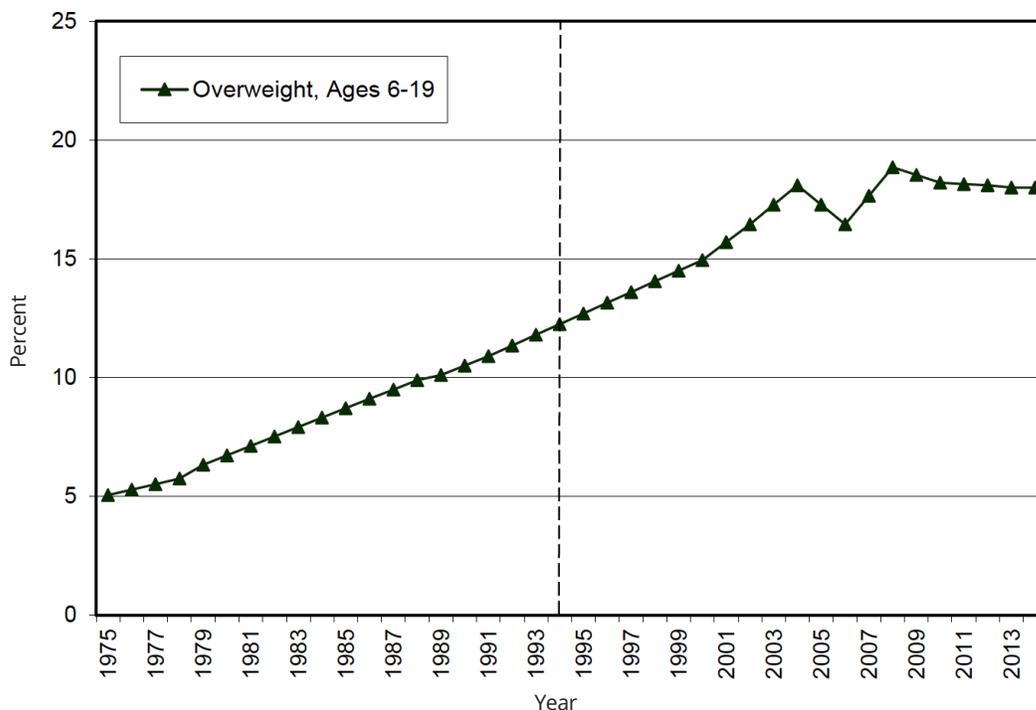
24 The obesity time series in Figure 15 follow the definition first established in 1977, revised in 2000 (Kuczmarski Robert J., Cynthia L. Obden, Shumei S. Guo, Laurence M. Grummer-Strawn, Katherine M. Flegal, Zuguo Mei, Rong Wei, Lester R. Curtin, Alex F. Roche, and Clifford L. Johnson. 2002. "The 2000 CDC Growth Charts for the United States: Methods and Development." *Vital Health Statistics* 11:246), and renamed (Kreb, Nancy F., John H. Himes, Dawn Jacobson, Theresa A. Nicklas, Patricia Guilday and Dennis Styne. 2007. "Assessment of Child and Adolescent Overweight and Obesity." *Pediatrics* 120:S193-S228). That is, obese is defined as a body mass index (BMI) at or above the sex-specific 95th percentile BMI cutoff points calculated at six-month intervals for children ages 6 through 11 from the 1963-65 National Health Examination Survey (NHES) and for adolescents ages 12 through 17 from the 1966-70 NHES. Age is at time of examination at mobile examination centers in the NHES. The obesity time series in Figure 15 were linearly interpolated for intervening years from the waves of the National Health and Nutrition Examination Survey (NHANES): 1971-74, 1976-80, 1988-94, 1999-2000, 2001-2002, 2003-2004, 2005-2006, 2007-2008, and 2009-2010. Values for the years 2011, 2012, and 2013 were based on demographic projections of recent early childhood (ages 2 to 5) and middle childhood (ages 6 to 11) obesity values from the 2003-2004 to 2009-2010 waves of the NHANES.



**Figure 14** Subjective Health Indicators, 1984-2012, with Projections in 2013

In Figure 14, the medium-term trends in the Key Indicator time series of parental assessments of the health of their children are indicative of increasing dispersions. That is, while the percent of children assessed as in very good or excellent health by parents increased from 79 percent in 1994 to 83 percent in 2013, at the same time the percent of children reported as having activity limitations increased from 6.7 percent in 1994 to 8.6 percent in 2013. In brief, at the same time when an increasing percentage of children are reported as in very good or excellent health (at the upper end of the health spectrum), there also is an increasing percentage who are reported to have activity limitations.

Figure 15 displays the time series for the final Key Indicator in the Health Domain, the percent of children in two age groups, middle childhood (ages 6-11) and pre-teen-teenagers (ages 12-19). It can be seen that the percentages essentially have quadrupled over the long-term and have increased by about 50 percent in the medium-term from 12.25 percent in 1994 to 18.20 percent in 2010.<sup>24</sup> It is these large increases that counterbalance the improvements in child mortality rates in Figure 13 and that account for the 27 percent medium-term decline in the Health Domain Index from 1994 to 2013.



**Figure 15** Overweight Percentages, 1975-2010, with Projections for 2011-2013

On the other hand, the short-term trend in this Key Indicator is flattening – from 2004 to 2010, the percent overweight in middle childhood (ages 6-11) remained constant at 18 and the percent overweight in early childhood (ages 2-5) declined from 13.9 to 12.1 percent. Our demographic projections, based on aging of these younger children into middle childhood and the adolescent-teenage years, are predictive of a slight decline in the overall percentage in the years since 2010, as shown in Figure 15.

#### **IV. Findings from a Child Suffering Index (CSI), 1975-2013**

The CWI has been motivated by the well-being question: “How are the kids doing?” Reversing the spectrum of this question, it becomes “Are the kids suffering?” As with the well-being question, adults might be able to answer these questions for their own children or those in their immediate surroundings, and many children could provide information about their own well-being/suffering or those of other children. However, applied to large populations of children, suffering questions are more challenging and merit systematic research attention.

The Child Well-Being Research Project team recently has focused on the extent to which its Key Indicators can be used to assess trends U.S. in child and youth suffering.<sup>25</sup> This section reports our initial explorations as a first step towards that objective in what will be a continuing exploration with additional special emphasis reports as part of the Project’s Annual Reports in years to come.

Most generally, suffering refers to barriers to the realization of child well-being and happiness. Suffering includes distress resulting from threat or damage to one’s physical being (physical suffering), distress originating in one’s cognitive or affective self-identity (mental suffering), and distress cumulating from threat or damage to one’s social identity (social suffering).<sup>26</sup> Applying this conceptual scheme to the 28 Key Indicators of the CWI, we tentatively have assigned the following 15 Key Indicators to the Physical Suffering,

Social Suffering, and Mental Suffering categories:<sup>27</sup>

##### **Physical Suffering:**

- Rate of low birth weight
- Infant Mortality rate
- Mortality rate, ages 1-19
- Percentage of children ages 0-17 with Very Good or Excellent health (as reported by parents)
- Percent of children ages 0-17 with Activity Limitations (as reported by their parents)
- Obesity rate, 6-19

##### **Social Suffering:**

- Percent of Children Ages 0-17 living in families below the poverty line
- Percent of Children Ages 0-17 living in families with secure parental employment
- Percent of Children Ages 0-17 living in families with health insurance
- Percent of Children Ages 0-17 Living in Single-Parent families
- Rate of Residential Mobility of Children Ages 0-17
- Percent who have received high school diploma, Ages 18-24
- Percent not working or in school, Ages 16-19

##### **Mental Suffering:**

- Violent Crime Victimization rate, Ages 12-17
- Suicide rate, Ages 10-19

<sup>25</sup> At the level of international comparisons, our work is reported in Land, Kenneth C., Vicki L. Lamb, and Qiang Fu 2015 “Child Well-Being and Child Suffering.” In Anderson, Ronald E. (ed.) 2015 *World Suffering and Quality of Life*. New York: Springer, forthcoming.

<sup>26</sup> See Anderson, Ronald E. 2014. *Human Suffering and Quality of Life: Conceptualizing Stories and Statistics*. Springer

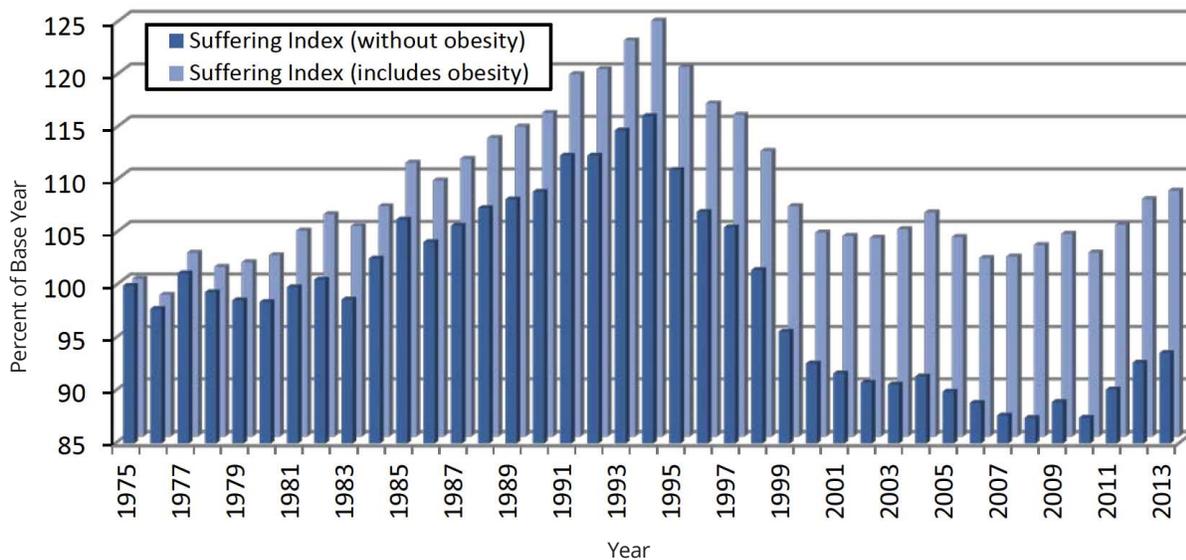
<sup>27</sup> As with the CWI (see footnote 6), some Key Indicators can be assigned to more than one category of suffering. For purposes of Index calculation, however, each is included only in one category. An example is the Violent Crime Victimization Rate Key Indicator. Being victimized by a violent crime can result in both physical and mental suffering and thus this indicator could be included in both categories. Since, in most cases of violent crime victimization of children and youths ages 12-17, mental suffering (anxiety, anguish, depression, etc.) is a longer term consequence than physical suffering, we have included this Key Indicator in the mental suffering category.

To construct a U.S. Child and Youth Suffering Index (CSI) on a basis comparable to the CWI, we indexed these 15 Key Indicator time series to the 1975 base year and recoded them in such a way that an increase indicates an increase in suffering. As with the CWI, the 15 indexed time series then were composed into equally-weighted category-specific indices which then were composed into an equally-weighted overall CSI the metric of which is annual percentage changes from the base year 1975 value of 100. These 15 Key Indicators are a core part of the CWI. Therefore, when coded such that an increase in the indicators is indicative of an increase in suffering, it is expected that the resulting Child and Youth Suffering Index will have a negative correlation with the Child and Youth Well-Being Index. However, the CWI includes a number of other indicators that are reflective of child well-being/flourishing. Therefore, the CSI will not be perfectly negatively correlated with the CWI.

Two variations on the resulting CSI are shown in Figure 16, one that includes the obesity Key Indicator and one that does not. Because the long-term obesity trend from 1975 has been so large, as noted above in the discussion of Figure 15, it has a very large impact on the CSI if it is included. The result is a CSI series in

Figure 16 that rises above the base year value of 100 in 1975 very quickly in the 1980s, reaches a peak of 124.6 in 1994 followed by a decline to a low point of 104.4 in the year 2000, and then oscillates in the 2000s and values in the 102 to 104 range in the years 2009, and then climbs to 107.6 in 2012 and 108.4 in 2013. If the obesity series is not included, then Figure 16 shows that the impacts of the decline in violent crime victimization bring the series down to less than the base year 100 value in the late 1990s. It then stays in 91 to 94 range from 2001 to 2013.

As expected, there is an inverse relationship between trends in the CWI and the CSI. And, as expected, the correlation is not perfect, which is to say that there are some years in which overall child and youth well-being increases at the same time that child suffering increases and vice versa. In terms of trends over the 38-year time period, however, both versions of the CSI are consistent with conclusions from the CWI, namely that the years from the mid-1980s to the mid-1990s were years of low overall child and youth well-being and high child and youth suffering.



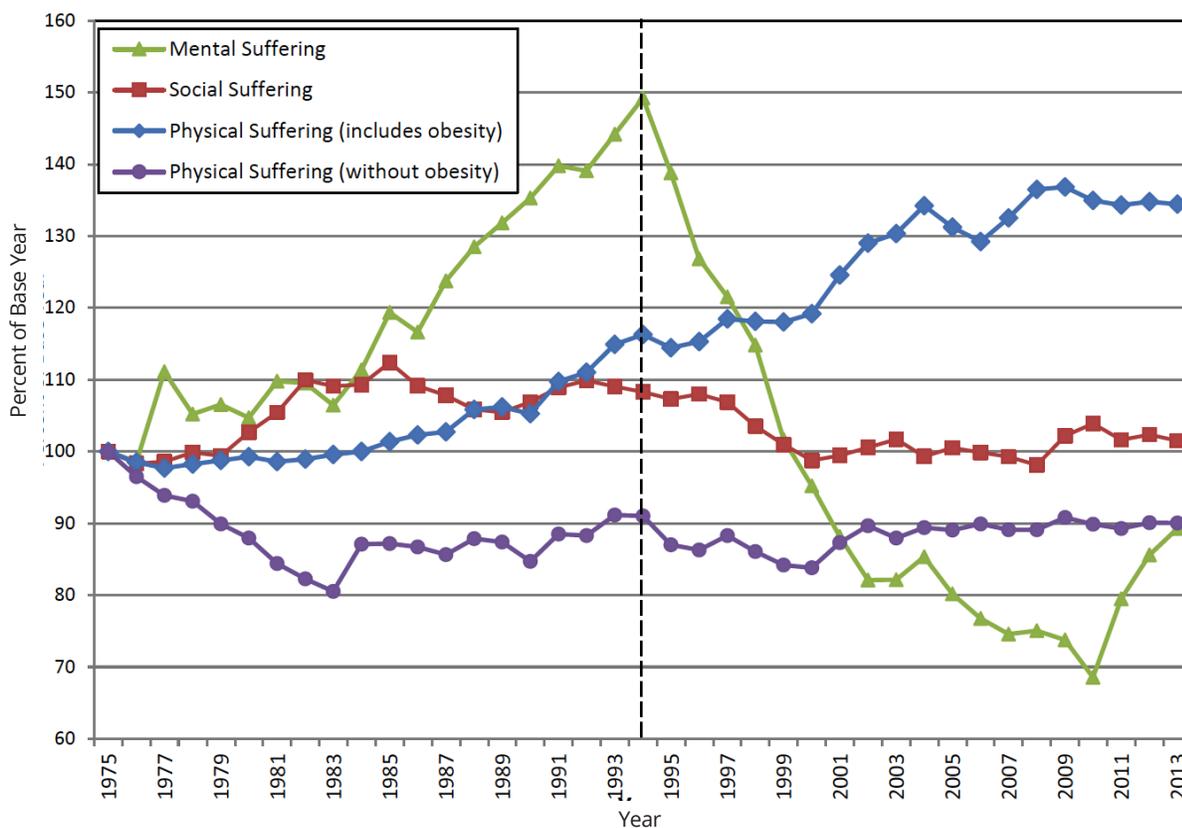
**Figure 16** Child Suffering Index, Without and Including Obesity Indicator, 1975-2013

Analogous to Figure 2 on trends over time in the Domain Indices of the CWI, Figure 17 shows annual percentage changes since 1975 in the three categories of child suffering, with the value of each series in the base year 1975 set equal to 100.

These category-specific suffering indices reveal trends that help to interpret the findings from the overall CWI of Figure 1 and the overall CSI of Figure 16. Specifically, it can be seen that the Social Suffering Index, which includes Key Indicators of economic deprivation, fragile family structures, and detachment from mainstream social institutions, begins to increase (which is indicative of increased suffering) in 1980 above its base year 1975 value of 100 and its increase leads the increase of the Mental Suffering Index, which begins in 1984 and includes Key Indicators of Violent Crime Victimization and adolescent/teenage suicide. Both of these Indices show declines (which are indicative of decreased suffering) that begin in the mid-1990s, with the decline of the Mental Suffering Index being much more extensive and continuing through the 2000-2010 decade. By comparison, the Physical Suffering Index with the obesity Key Indicator included begins a long-term rise (indicative of increased suffering) in the

mid-1980s that continues through the first decade of the 21st century, with stabilization in the years since 2010. If the obesity indicator is not included in the Physical Suffering Index, then the series shows a decline (indicative of decreased suffering) in the first 8 years, bottoming out at 80.51 in 1983. From that point, it increases slightly and varies in the range of 83 to 90 throughout the remaining years.

In conclusion, this initial version of a National Child and Youth Suffering Index yields information on trends over time in the status of America's children that focuses on the suffering end of the suffering to well-being/flourishing spectrum. With increasing demographic, social, and economic diversity in American society, it is possible for average levels of child and youth well-being, as measured by the CWI, to increase, while, at the same time, child and youth suffering indices and indicators also are increasing. Accordingly, future CWI Annual Reports will report on additional child suffering analyses.



**Figure 17** Category-Specific Child Suffering Indices, 1975-2013

# Acknowledgements and Contact Information

The Child and Youth Well-Being Index Project at Duke University is coordinated by Kenneth C. Land, Ph.D., Department of Sociology, Duke Box 90088, Duke University, Durham, NC 27708-0088 (email: [kland@soc.duke.edu](mailto:kland@soc.duke.edu)) and the Duke Center for Child and Family Policy, [www.childandfamilypolicy.duke.edu](http://www.childandfamilypolicy.duke.edu). The Project is supported by a grant from the Foundation for Child Development (<http://www.fcd-us.org/>).

Dr. Land is a Faculty Fellow in the Center for Child and Family Policy, Research Professor in the Social Science Research Institute, and John Franklin Crowell Professor of Sociology and Demography Emeritus at Duke University. He has conducted extensive research on contemporary social trends and quality-of-life measurement, social problems, demography, criminology, organizations, and mathematical and statistical models and

methods for the study of social and demographic processes. He is the co-author or co-editor of eight books, more than 200 research articles and book chapters. Dr. Land has been elected a Fellow of the American Statistical Association, the Sociological Research Association, the American Association for the Advancement of Science, the International Society for Quality-of-Life Studies, and the American Society of Criminology.

Other researchers involved in the Project include Vicki L. Lamb, Ph.D. (Professor, North Carolina Central University and Duke University), and Qiang Fu, M.A. (Duke University).

On the Web: More information about the CWI, its construction, and the scientific papers and publications on which it is based can be found on online at: <http://www.soc.duke.edu/~cwi/>

## Appendix A Conceptual Foundation, Methods of Construction, and Indicator List for the CWI

### Conceptual Foundation

The National Child and Youth Well-Being Index (CWI) is based on more than four decades of research on social indicators and well-being/quality-of-life research on children, youth, and adults. This research has established that overall well-being/life quality is multidimensional. This research is the foundation on which the CWI is based.<sup>28</sup>

### Methods of Construction

Annual time series data (from vital statistics and sample surveys) were assembled on 28 national-level Indicators in seven Quality-of-Life Domains: Family Economic Well-Being, Safe/Risky Behavior, Social Relationships, Emotional/Spiritual Well-Being, Community Engagement, Educational Attainment, and Health. These seven Domains have been well-established, having recurred time after time in more than three decades of empirical research in numerous subjective well-being studies. They also have been

found, in one form or another, in studies of the well-being of children and youth.

To calculate the CWI, each of the time series of the Indicators is indexed by a base year (1975). The base-year value of the Indicator is assigned a value of 100 and subsequent values of the Indicator are taken as percentage changes in the CWI. The directions of the Indicators are oriented so that a value greater than 100 in subsequent years means the social condition measured has improved, while a value less than 100 in subsequent years means the social condition has deteriorated.

The 28 indexed Key Indicator time series then are grouped into the seven Domains of Well-Being by equal weighting to compute the Domain-Specific Index values for each year. The seven Domain-Specific Indices then are grouped into an equally-weighted CWI value for each year. The CWI Project uses an equal-weighting strategy for constructing its composite indices for two reasons.

28 ee Land, K. C., Lamb, V. L., and Mustillo, S. K., 2001, "Child and Youth Well-Being in the United States, 1975-1998: Some Findings from a New Index." *Social Indicators Research*, 56, (December):241-320; Land, K. C., Lamb, V. L., Meadows, S. O., and Taylor, A., 2007, "Measuring Trends in Child Well-Being: An Evidence-Based Approach," *Social Indicators Research*, 80 (January):105-132; Land, K. C. (ed.), 2012, *The Well-Being of America's Children: Developing and Improving the Child and Youth Well-Being Index*. New York: Springer.

First, it is the simplest and most transparent strategy and can easily be replicated by others. Second, statistical research done in conjunction with the CWI Project has demonstrated that, in the absence of a clear ordering of the Indicators of a composite index by their relative importance to the composite index, and with a high degree of consensus in the population, an equal weighting strategy is privileged in the sense that it will achieve the greatest level of agreement among the members of the population. In statistical terminology, the equal-weighting method is a minimax estimator.<sup>29</sup>

The CWI builds on a base of subjective well-being empirical research in both identifying which Domains of Well-Being to measure and assigning Indicators to those Domains. It can therefore be viewed as an evidence-based measure of trends in averages of the social conditions encountered by children and youth in the United States across recent decades.

### Social Relationships Domain

1. Rate of Children in Families Headed by a Single Parent
2. Rate of Children Who Have Moved Within the Last Year (Ages 1–17)

### Emotional/Spiritual Well-Being Domain:

1. Suicide Rate (Ages 10–19) <sup>c</sup>
2. Rate of Weekly Religious Attendance (Grade 12) <sup>b</sup>
3. Percent Who Report Religion as Being Very Important (Grade 12) <sup>b</sup>

### Community Engagement Domain

1. Rate of Persons Who Have Received a High School Diploma (Ages 18–24) <sup>b</sup>
2. Institutionally Disconnected Youth Rate (Ages 16–19)
3. Rate of PreKindergarten Enrollment (Ages 3–4) <sup>c</sup>
4. Rate of Persons Who Have Received a Bachelor's Degree (Ages 25–29) <sup>b</sup>
5. Rate of Voting in Presidential Elections (Ages 18–20) <sup>c</sup>

### Educational Attainment Domain

1. Reading Test Scores (Ages 9, 13, and 17) <sup>e</sup>
2. Mathematics Test Scores (Ages 9, 13, and 17) <sup>e</sup>

### Health Domain

1. Infant Mortality Rate
2. Low Birth Weight Rate
3. Mortality Rate (Ages 1–19) <sup>c</sup>
4. Rate of Children With Very Good or Excellent Health (as reported by parents) <sup>b</sup>
5. Rate of Children With Activity Limitations Due to Health Problems (as reported by parents) <sup>b</sup>
6. Rate of Obese Children and Adolescents (Ages 6-19) <sup>d</sup>

29 See Michael R. Hagerty and Kenneth C. Land, "Constructing Summary Indices of Quality of Life: A Model for the Effect of Heterogeneous Importance Weights," *Sociological Methods and Research*, 35 (May, 2007): 455–496.

Notes: a Unless otherwise noted, indicators refer to children ages 0–17.  
b Projected for 2013.  
c Projected for 2012 and 2013.  
d 2011 to 2013 data are held approximately constant at the 2010 value until new data are available.  
e Reported data for 2008 and 2012; projected for 2009–2011 and 2013

## Appendix B

### Sources of Data for the National CWI

Child Poverty	U.S. Bureau of the Census, March Population Survey, Current Population Reports, Consumer Income, Series P-60, Washington, D.C.: U.S. Bureau of the Census, <a href="http://www.census.gov/hhes/www/poverty/data/historical/hstpov3.xls">http://www.census.gov/hhes/www/poverty/data/historical/hstpov3.xls</a> , 1975–present
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## Appendix C

### National Child and Youth Well-Being Index Values, 1975-2010,<sup>30</sup> with an Updated Estimate for 2012, and an Initial Estimate for 2013<sup>31</sup>

Year	CWI	Annual Change in CWI
1975	100.00	0.00
1976	100.75	0.75
1977	98.93	-1.82
1978	99.26	0.32
1979	99.97	0.71
1980	99.59	-0.37
1981	97.37	-2.23
1982	96.02	-1.35
1983	96.55	0.53
1984	96.43	-0.11
1985	93.92	-2.51
1986	95.14	1.22
1987	93.98	-1.15
1988	94.00	0.01
1989	94.52	0.52
1990	94.06	-0.46
1991	92.97	-1.09
1992	92.87	-0.10
1993	91.50	-1.37
1994	91.37	-0.14
1995	93.22	1.85
1996	93.87	0.65
1997	94.29	0.42
1998	96.92	2.63
1999	99.34	2.42
2000	101.20	1.85
2001	101.26	0.06
2002	102.49	1.23
2003	101.41	-1.07
2004	101.12	-0.29
2005	101.96	0.83
2006	103.17	1.21
2007	103.22	0.05
2008	102.91	-0.31
2009	101.84	-1.07
2010	102.23	0.39
2011	101.85	-0.38
2012	102.19	0.34
2013	102.90	0.71

<sup>30</sup> Numerical values of the CWI for earlier years are calculated and reported in each annual CWI Report. These values may have slight numerical differences from report to report due to the following factors:

1. Updates in the numerical values of some of the Key Indicator time series. For instance, in the 2012 annual report, the childhood obesity time series is updated with newly-released CDC statistics. Similarly, each year, the median family income series is updated with the most recent inflation-adjusted data from the U.S. Census Bureau, and recent vital statistics, such as teenage birth and mortality rates, are retrieved from preliminary reports issued by the CDC. When the CDC issues final reports one year later, vital statistics are usually adjusted and our indicators are updated accordingly.
2. Changes in the time series statistics. For instance, in the 2011 annual report, we adjusted the activity limitation series so that the age intervals of respondents (0–17) are consistent from 1975 to 2009 and updated the corresponding data from 2004 to 2009.
3. Data on the Political Participation, (ages 18–24), Math Scores, and Reading Scores series are available only every four years. When new data become available, the projected Indicators of these series are updated accordingly.

<sup>31</sup> As of release date, 6 Key Indicators were projected for 2012 and 15 Key Indicators were projected for 2013; see Table A-1 in Appendix A.

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