

A New State-Level Index of Child Well-Being for Young Children in the U.S.

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Received: 27 August 2014 / Accepted: 7 November 2014 / Published online: 19 November 2014
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Abstract Public interest and public policy attention on the importance of cognitive and social development of young children has increased in recent years, at least in part, because scholars and researchers have found that experiences early in life have critical developmental consequences. Although scholars have generated a great deal of data on young children, relatively little is known about spatial variation in the well-being of young children. This study uses 12 indicators of child well-being to construct a comprehensive composite index of child well-being for children age 0 to 5 in each state in the United States. Examination of the 12 indicators of well-being for young children shows a high level of variation across states. The modest positive correlations among the four domains in the index suggest that they are measuring different elements of well-being. The composite index reveals that the well-being of young children follows a familiar spatial pattern, namely the well-being of young children in states located in the Deep South and the Southwest is relatively poor and the well-being of children in New England and the upper Midwest is relatively good. However, there are several exceptions to this pattern which underscores the importance of examining the wellbeing of young children separately for all children. This study adds to a growing literature that uses an index of well-being to examine different groups of children.

Keywords Child · Well-being · Index · Methodology

Introduction

Over the past few decades there has been increased attention to the importance of early development in children (National Research Council 2000; Campbell et al. 2014). Research has shown differences in early education and development opportunities among groups have important implications for the trajectory of well-being into adulthood (Duncan et al. 1998; Karoly et al. 2005; Heckman 2011).

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Much of the thinking on this issue is summarized nicely by Burd-Sharps and her colleagues in their comments relative to the first few years of life (2012, page 172),

“These are years of remarkable opportunity, when the foundation for a productive and fulfilling life can be laid through family and societal investments in health, education, a many other areas. On the other hand, children under five are also uniquely vulnerable to a whole set of hazards and deprivation,”

Given the natural aging of the population, young children today will be entering the workforce in a couple of decades. If young children are not getting the health care, early education experiences, and income supports they need to get off to a good start, it will compromise a countries' workforce and our international competitiveness in the future.

The increased attention to the well-being of young children, improvements in the construction and use of indices of well-being, and the appreciation of state differences have led some to call for a state level index of child-wellbeing for young children. For example, Burd-Sharps et al. (2012, page 167) have called for a “tots index” to be created in the United States. Social indicators reflecting the well-being of young children have been collected and reported at the national level (Oser and Cohen 2003; Land 2008; The Annie E. Casey Foundation 2002, 2013a, b; Murphey et al. 2013). To date, however, no study has examined the variation across states in the well-being of preschool age children in a comprehensive way.

This article responds to such calls by creating an Index of Wellbeing for Preschoolers (IWP) for each state. In this article, a broad comprehensive composite quality-of-life measure is developed and used to examine differences in the welfare of the preschool age populations in each state. The quality of life measure used here is an index based on 12 indicators from four commonly used domains of well-being. Details of the 12 indicators used to construct the IWP Index are presented, statistical characteristics of the index are explored, and then states are ranked on the basis of the index values. State ranking for the well-being of young children are compared to a commonly used state ranking for the well-being of all children.

The Importance of States

In the context of the United States, it is important to understand that states have a large and increasing role to play in policies related to children. In examining the relative role of federal and state government for the well-being of children Gormely concludes (2012, p 100);

“The role of state government in funding and regulating elementary and secondary education has long been of critical importance, and state expenditures on child health through Medicaid and Child Health Insurance Program (SCHIP), have increased significantly in recent years. More than federal government, state governments devote a substantial percentage of their time and their financial resources to children.”

States have always had a strong role to play in creating policies for the children, but during the past few decades there has been devolution of more responsibility for

programs designed to support vulnerable children and families from the federal level to the state level (Winston and Castañeda 2007). Devolution of federal power, through block grants, the passage of welfare reform in the mid-1990s (The Personal Responsibility and Work Opportunity Reconciliation Act of 1996) and other mechanisms have made states more powerful actors in social policy decisions (Finegold et al. 2004).

A recent comprehensive review of state and federal program responsibilities for major safety net programs by Winston and Castañeda (2007, Page 27) concluded;

“The recent shifts in federal-state arrangements across both standard setting and financing functions appears to have contributed to a widening of state variation in standards for, and financing of, three of these programs: TANF, Food Stamps, and Medicaid (with state variation a hallmark of SCHIP since its inception).”

States also have significant policy-maker authority for the preschool population. The Education Commission of the States (2013, 2014) has systematically monitored state spending on Pre-K program over the past few years and shows states differ substantially in the amount of funds provided and in recent changes in the amount of funds provided for Pre-K programs. States also vary in terms of child welfare policy and initiatives for the population age 0 to 3 (Child Trends 2013).

In contrast to the state control of safety net programs for children the two biggest programs providing support for the elderly, Social Security and Medicare, are federal programs with standard nationwide formulas for calculating eligibility and benefits.

Inequities flowing from the split state/federal responsibility for taking care of the youngest and oldest citizens are underscored by the fact that the federal government provides \$27,975 for each elderly person, but only \$4,894 for each child (Hahn, et al. 2014, page 29). Less than 10 % of the Federal budget goes to support children despite public opinion polls that show overwhelming support for children’s programs (First Focus 2011). Another recent report shows that needy children get more of their government financial support from state and local sources than from Federal sources (Isaacs et al. 2011).

The enhanced decision-making powers of states have led to increased demand for state-level measures of child well-being (Brown & Moore 2007). As state leaders grapple with the needs of vulnerable children, having a clear understanding of the number, trends, and characteristics of vulnerable children at the state level is more important than ever. The analysis presented here adds to the state-level information that policy makers require for data-based decision making by providing a comprehensive assessment of the well-being of the preschool population in each state.

It is important to examine state-level differences in the well-being of preschool children because many policies are state-based, but it is also important to examine state-level measures of well-being because of the extensive variation in child well-being across states. Examination of the 16 indicators of child well-being used in the 2014 KIDS COUNT Data Book show that in every case the worst state has a value that is nearly two times that of the best state (The Annie E. Casey Foundation 2014). A recent study (Patterson and O’Hare 2014) found that nearly 80 % of the state-level indicators in the 2012, 2013 and 2014 KIDS COUNT Data Book were statistically significantly different than the corresponding national rate. O’Hare (2006) found that nearly 70 % of states indicator values were statistically significantly different than the national average

on the ten child well-being indicators previously used in the annual KIDS COUNT report. Given these state-level differences, national measures of child well-being tell us very little about what is happening in any particular state or region.

Conceptualizing and Measuring Child Well-Being

There is little consensus on exactly how to define the concept of child well-being (Pollard and Lee 2002), but there does seem to be widespread agreement that child well-being is a multi-dimensional concept (Ben-Arieh et al. 2014). Drawing on a wealth of past studies, child well-being is conceptualized here as a multi-dimensional construct, which is reflected in a variety of indicators from four key domains of well-being;

- Health
- Education
- Income Security
- Family and Community Support

The four domains of well-being used here are among the most widely used domains based on a review of domain-driven indices of child well-being (O'Hare and Guttierrez 2012).

Data

Young children, by that I mean those age 0 to 5, are different than older children in several ways that impact the data available for this group. Young children are typically not in a school system yet and that means that there are no standardized administrative data or test scores available that might shed light on their well-being. Since schools are often used as sampling frames for collection of non-educational data, the fact that young children are not in a school system means this convenient form of data collection is not available for them. In addition, young children are typically not involved in non-educational organized activities like sports teams or extra-curricular activities that can sometimes be used to gather data on older children.

It is widely believed that children age 0 to 5 are not capable of providing reliable measures of subjective well-being. Moreover, a significant share of the population under age 5 cannot provide verbal feedback of any kind.

Consequently, the types of well-being indicators that are available for young children are a subset of all well-being measures for children. The first step for this study is to see if there are enough high-quality indicators of child well-being for this age group to provide a comprehensive portrait of well-being for this demographic group at the state level.

Table 1 lists 12 indicators of child well-being for preschool-age children that have been employed in at least one major study or report. Many of these social indicators have been used in multiple studies of child well-being. Importantly for this study, the 12 indicators of child well-being for young children listed in Table 1 are available and comparable across states. The rationale and justification for using each of these

Table 1 Potential Indicators of Well-Being for Young Children Used in Other Key Studies

Economic indicators	KIDS COUNT ^a	America's Children Report ^b	Child Wellbeing Index ^c	OECD 2009 Report ^d	Association of Maternal and Child Health Programs ^e
Percent of age 0–4 with secure parental employment	YES 2013	YES	YES		
Percent in Poverty for age 0–4	YES 2013	YES	YES	YES	YES
Percent of age 0–4 in a state who live in high poverty neighborhoods	YES 2013				
Education Indicators					
Percent age 3–4 NOT in preschool	YES 2013		YES		
Percent of Children ages 1–5 Whose family members read to them LESS than 3 days a week		YES			
Health indicators					
Infant Mortality Rate	YES 2011	YES	YES	YES	
Percent Age 19–35 months NOT immunized	YES 2011	YES		YES	
Percent born with low birth weight	YES 2013	YES	YES	YES	YES
Percent age 0–4 lacking health insurance	YES 2013	YES	YES		
Percent of newborns not breastfed				YES	YES
Family And Community Indicators					
Percent of population age 0–4 NOT living in a married-couple family	YES 2013	YES	YES		
Percent of Children age 0–3 who did NOT receive a New Parent home visit					YES

^a KIDS COUNT www.kidscount.org

^b America's Children Report <http://childstats.gov/americaschildren/>

^c CWI <http://www.soc.duke.edu/~cwi/>

^d OECD 2009 Doing Better for Children

<http://www.oecd.org/social/family/doingbetterforchildren.htm>

^e Association of Maternal and Child Health Programs online at

<http://www.amchp.org/programsandtopics/data-assessment/Pages/LifeCourseMetricsProject.aspx>

indicators as a measure of child well-being are provided in the cited studies where they have been used.

In selecting data to use in this study there was a tradeoff between using the most recent data available or trying to select data to reflect the same year. Table 2 shows

Table 2 Source of Data for Indicators Used in the Young Child Well-Being Index

Domain	Indicator	Most recent Year of Data	Source of Data for this study	Original Source of Data
Economic Domain	Percent of Children age 0–5 with no parent in labor force	2012	KIDS COUNT website	U.S. Census Bureau, American Community Survey
	Percent of Children age 0–5 in poverty	2012	KIDS COUNT website	U.S. Census Bureau, American Community Survey
	Percent of Children Age 0–5 Living in High-Poverty Neighborhoods	2007–2011	Special analysis of the 2007–2011 ACS by the Population Reference Bureau	U.S. Census Bureau, American Community Survey
Education Domain	Percent of Children age 3 and 4 NOT enrolled in Preschool	2010–2012	KIDS COUNT website	U.S. Census Bureau, American Community Survey
	Percent of Children ages 1 to 5 whose family members read to them LESS than 3 days per week	2011–2012	KIDS COUNT website	National Survey of Children's Health
Health Domain	Infant Mortality Rate (Deaths per 1000 Live births)	2010	KIDS COUNT website	U.S. National Center for Health Statistics
	Percent of 2-year-olds who were immunized	2012	KIDS COUNT website	U.S. National Center for Health Statistics
	Percent of babies born with low-birthweight	2011	KIDS COUNT website	U.S. National Center for Health Statistics
	Percent of Children age 0–5 Without Health Insurance	2011	KIDS COUNT website	U.S. Census Bureau, American Community Survey
	Percent Infants born in 2010 Ever Breast feed	2010	U.S. Center for Disease Control and Prevention DC	National Immunization Survey
Family and Community Domain	Percent of Children age 0–4 Living in Married-Couple Households	2012	Authors tabulation of 2012 ACS on IPUMS	U.S. Census Bureau, American Community Survey
	Percent of Children age 0–3 who did NOT receive a new parent home visit	2011–12	KIDS COUNT website	National Survey of Children's Health

detailed information about the sources for the indicators used here. At the time this analysis was done, the most recent data available for some measures was 2010, for some measures it was 2011 and for some measures it was 2012. That issue is further complicated by the fact that some measures are based on an accumulation of 3 years or 5 years of data. Three or five years of data were used in order to build up a large enough sample size to produce reliable state estimates. Since it would not be possible to select indicator data that all reflected exactly the same year, the most recent data available were used for each indicator. Thus the indicators roughly reflect the period from 2010 to 2012.

The IWP developed here generally reflects the population described as “pre-schoolers” but it should be noted that due to data availability issues, a few measures include 5-year-olds and some measures only reflect a select age group of the preschool population. For example, the measure of percent immunized is based on children 19 to 35 months of age and preschool attendance reflects only those age 3 and 4. The ages reflected in each indicator are shown in Tables 1 and 2.

Index Construction

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 Cooperation 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. 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.

Combining several indicators into an overall 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.

Before combining the indicators into an index, the state data had to be standardized in two ways. The directionality of indicators had to be standardized and all of the measures had to be converted to standard score units. By *directionality* I mean a high value on some indicators (e.g. percent immunized) reflects positive child well-being but a high value on other indicators (e.g., child poverty) reflects poor child well-being. In the initial data used here, a high score for nine of the twelve indicators reflects a more negative outcome, but for three of the indicators (Percent of 2-year-olds immunized, Percent of Newborns ever Breastfed and Percent of children Living in Married-Couple Households) a high scores reflects a good outcome. Standardizing directionality was done by inverting percentages for the three indicators noted above. For example, percent of 2-year-olds immunized was changed to percent of 2-year-olds NOT immunized.

It is also necessary to standardize scores because they often are measured on different units or scales. For example, adding the Infant Mortality rate, which is measured as deaths per 1000 births, to percent of children in poverty does not make sense because the two indicators are based in different units. Moreover, the distributions are quite different across measures. For example, the state scores for the percent of

3- to 4-year-olds not in school ranged from 34.9 % to 71.5 % while the range for low birthweight babies was only 5.7 % to 12.3 %. If we simply combined these two percentages, data for the percent of 3-to 4-year-olds not in school would dominate the resulting sum. By standardizing the variables, as described below, we make sure that each measure is given equal weight in the domain score.

Standard scores (also called *z-scores*) for each indicator were derived by subtracting the overall mean state value from the state estimate and dividing that value by the standard deviation for that distribution of state estimates, as shown in the formula below. In formula (1). This is a common approach for index construction (O'Hare and Gutierrez 2012; Bradshaw and Richardson 2009; O'Hare 2014; Lamb et al. 2014).

After all indicators have been transposed to standardized scores, domain indices were constructed by averaging the standardized scores for all the indicators within each domain. In a few cases where values were missing only the indicators with values were averaged. After standard-scores for each domain were constructed, an overall index was constructed by averaging the four domain index values.

For readability and ease of interpretation, the index values were inverted. Thus a higher score means better child well-being. Finally, states were ranked on the basis of their total standard score in sequential order from best (1) to worst (50).

In constructing domains scores from indicators and constructing the overall index scores from domain scores, and equal-weighting approach was used. An equal-weighting strategy is the simplest, most widely used, and most transparent method for index construction and that is the method used here. It should be noted that some researchers have questioned whether an equal-weighting strategy is appropriate in measuring child well-being, given that not all measures contribute equally to children's overall quality of life, but there is no consensus at this point on a preferred alternative to equal weighting (Hagerty and Land 2007; Zill 2006). Moreover, Haggerty and Land (2007) argue that absent any compelling reason to vary weights, an equal weighting scheme works best. They show with both analytic proofs in a model of heterogeneous importance weights for composite indicators and numerical simulations that the equal weights method is a *minimax statistical estimator* in the sense that it minimizes extreme disagreements among individuals making such ratings.

Results

Table 3 shows summary measures for all 12 indicators after directionality was made consistent. After reverse coding, a higher score always reflects worse outcome for children for each of the 12 indicators.

Table 3 shows that there is a lot of variation in individual indicators of young child well-being across the states. In all but one of the indicators (Percent of Children age 0–3 who did NOT receive a new parent home visit) the maximum value is at least twice the minimum value and in many cases the maximum value is several times the minimum value. Given the extensive variation among individual well-being indicators for young children, it is important to examine the variability for a comprehensive composite measure of young child well-being across states.

Table 4, shows the inter-correlations among domains index scores. All of the domains are positively correlated with one another as one might expect from domains

Table 3 Summary Statistics for Twelve Indicators of Child Well-Being for Preschool-age Children

Domain	Indicator	Mean	Standard Deviation	Minimum Value	Maximum Value
Economic Domain	Percent of Children age 0–5 with no parent in labor force	9.4	2.2	5	14
	Percent of Children age 0–5 in poverty	24.2	5.6	16	39
	Percent of Children Age 0–5 Living in High-Poverty Neighborhoods	10.7	5.7	1	26
Education Domain	Percent of Children age 3 and 4 NOT enrolled in Preschool	55.1	6.9	37	70
	Percent of Children ages 1 to 5 whose family members read to them LESS than 3 days per week	11.9	4.3	2	23
Health Domain	Infant Mortality Rate (Deaths per 1000 Live births)	6.2	1.3	3.7	9.7
	Percent of 2-year-olds NOT immunized	27.8	4.7	18	38
	Percent of babies born with low-birthweight	8	1.3	6	12
	Percent of Children age 0–5 Without Health Insurance	8.1	2.9	3	17
	Percent of Infants Born in 2010 NOT breast fed	24.5	10.3	8	50
Family and Community	Percent of Children Age 0–4 NOT living in a Married-Couple Household	33.9	5.5	17	49
	Percent of Children age 0–3 who did NOT receive a new parent home visit	84.1	7	69	95

of the same underlying concept. Since the domains represent different dimensions of well-being one would not expect them to have a perfect or even a very high correlation across states. The correlations vary from a low of +0.48 between Education and Family/Community to a high of +0.70 between Economics and Family/Community. The modest positive correlations among the domain scores suggests that each of the four domains reflects a different element of child well-being.

Table 5 shows the states ranked on the IWP value. Geographic clustering at the top and the bottom of the ranking is similar to rankings based on overall child well-being (The Annie E. Casey Foundation, 2012 and 2013a, b; O'Hare 2014; Every Child Matters 2008). The common pattern of child well-being across the states is summarized by O'Hare et al. (2013 page, 408) thusly;

States in the South and Southwest do poorly while states in the upper Midwest and Northeast do well. The bottom-10 states in terms of child well-being are

Table 4 Correlations among Domains of Well-being for Young Children

	Economics	Education	Health
Education	0.52		
Health	0.69	0.51	
Family and Community	0.70	0.48	0.61

almost all in the South and Southwest. The top-10 states are mostly in the Northeast and Upper Midwest.

Using the IWP, the top of the ranking is dominated by states from New England (for example, New Hampshire, Massachusetts, Vermont, Maine and Connecticut) and the Upper Midwest (for example, Minnesota, Iowa, and North Dakota). The bottom of the ranking is dominated by states from the South and Southwest. All ten of the states and the bottom of the ranking are located in the South or Southwest portion of the country.

Previous research found state child well-being rankings for the overall well-being of children are largely explained by demographic factors such as race (and Hispanic Origin) and urbanicity, but policies also play a role (O'Hare et al. 2013; Cohen 1998; Cohen 1998b).

To provide some context for the state rankings of preschool-age children, the state rankings were compared to a well-known measure of well-being for all children in each state. The KIDS COUNT state rankings reflect children age 0 to 19 and the KIDS COUNT rankings are based on sixteen child well-being indicators from four commonly used domains of well-being (O'Hare 2013). Ranking from the 2012 KIDS COUNT Data Book were used because they reflect data from about the same period as the data used in the YCWI for more information on the KIDS COUNT rankings go to www.kidscount.org.

For the most part, states that have relatively good child well-being for children of all ages have relatively high levels of child well-being for the preschool population. The correlation between the IWP and the KIDS COUNT rank is +0.92. The high correlation is not surprising since many of the factors that contribute to the well-being of all children (for example, family income, parental characteristics, and public policies) would impact both groups,

However, there are several states where the well-being of preschoolers differs substantially from the relative well-being of all children. There are four states (California, Hawaii, Oregon, and Wyoming) where the rank for preschool-age children is more than ten ranks higher (better) than the KIDS COUNT rank for all children.

There are two states (Maryland and South Dakota) where the ranking of well-being for preschoolers is more than ten ranks lower (worse) than the KIDS COUNT rank for all children.

The disparities between well-being of all children and the well-being of preschool age children in these states underscores the importance of examining the well-being of young children separately.

Discussion

The evidence presented here shows that there are enough commonly-used high-quality indicators of well-being for preschool age children that a state-level index can be

Table 5 States Ranked on YCWI Index Score along with Ranks from the 2012 KIDS COUNT Data Book

	Overall Average of Z-scores of 4 Domains	Rank Based on YCWI (1=best)	Rank Based on 2012 KIDS COUNT DATA BOOK (1=best)
New Hampshire	-1.08	1	1
Massachusetts	-1	2	2
Vermont	-0.97	3	3
Minnesota	-0.89	4	5
Utah	-0.78	5	11
Iowa	-0.67	6	8
Maine	-0.65	7	13
Connecticut	-0.62	8	7
Wyoming	-0.62	9	19
North Dakota	-0.62	10	6
Hawaii	-0.59	11	24
Nebraska	-0.5	12	9
New Jersey	-0.46	13	4
Colorado	-0.44	14	22
Washington	-0.4	15	18
Virginia	-0.4	16	12
Delaware	-0.39	17	23
Illinois	-0.34	18	21
Wisconsin	-0.32	19	15
Kansas	-0.26	20	16
Montana	-0.26	21	28
Pennsylvania	-0.2	22	14
Oregon	-0.19	23	33
Maryland	-0.15	24	10
Idaho	-0.14	25	20
Alaska	-0.06	26	30
Rhode Island	-0.04	27	25
New York	0	28	29
Missouri	0.1	29	26
Ohio	0.14	30	27
California	0.15	31	41
Indiana	0.15	32	31
Michigan	0.18	33	32
South Dakota	0.18	34	17
North Carolina	0.47	35	34
Oklahoma	0.47	36	40
Florida	0.48	37	38
Georgia	0.51	38	37
West Virginia	0.53	39	39
Tennessee	0.58	40	36

Table 5 (continued)

	Overall Average of Z-scores of 4 Domains	Rank Based on YCWI (1=best)	Rank Based on 2012 KIDS COUNT DATA BOOK (1=best)
Kentucky	0.61	41	35
Arkansas	0.66	42	42
South Carolina	0.73	43	43
Texas	0.78	44	44
Arizona	0.85	45	46
New Mexico	0.85	46	49
Alabama	0.95	47	45
Nevada	0.98	48	48
Louisiana	1.01	49	47
Mississippi	1.61	50	50

constructed for that population. Both the individual indicators and the overall comprehensive index based a composite of the indicators shows significant variation across the states in the well-being of preschool-age children.

This study extends a large and growing body of literature on measuring child well-being. Social Indicators have been widely used to measure and monitor child well-being in recent years (Ben-Arieh and Frones 2009; Ben-Arieh et al. 2001; Ben-Arieh and Goerge 2006; Brown 2008; Hauser et al. 1997; Naar-King et al. 2004) and one prominent use of such indicators has been the construction of global composite indices of child well-being (O'Hare and Gutierrez 2012; Lamb et al. 2014; Moore et al. 2014).

Such indices have been used to examined difference across countries (Bradshaw and Richardson 2009; The Innocenti Research Centre 2006, 2007, 2013; Organisation for Economic Cooperation and Development 2009; Lau and Bradshaw 2010) across states in the United States (The Annie E. Casey Foundation 2013a, b; O'Hare et al. 2013; Lamb and O'Hare 2013; Every Child Matters 2008) and across the states of Mexico (Red por los Derechos de la Infancia 2013). Indices have also been used at the local level (Bradshaw et al. 2009; Hur and Testerman 2012).

Indicators have also been combined to construct overall indices of child well-being in states by race and Hispanic Origin (The Annie E. Casey Foundation 2014) and for children in different income levels (O'Hare and Vandivere 2011; Vandivere et al. 2007).

This study extends research outlined above by provided a new index which reflects that well-being of preschool-age children in each state.

Summary and Conclusions

This study shows there are enough high quality measures of well-being for the preschool-age population to construct a robust state-level index of well-being based on indicators in four commonly used domains. The data show that the well-being of

young children varies across states but is more or less consistent with the well-being of all children in the state. The construction of a state-level index of well-being for young children adds to the field of measuring the quality of life for children.

Examining state level differences in the overall well-being of preschool-age young children is important because the experiences at the earliest age often set the trajectory for later developments. Moreover, the extent to which young child well-being differs across states challenges our aspiration for an equal opportunity in life.

References

- Ben-Arieh, A. (2006). "Measuring and Monitoring the Well-Being of Young Children Around the World," *paper commissioned for the EFA Global Monitoring Report 2007, Strong Foundations: Early Childhood Care and Education.*
- Ben-Arieh, A., & Frones, I. (Eds.). (2009). *Indicators of children's well-being: Theory and practice in a multi-cultural perspective.* New York: Springer.
- Ben-Arieh, A., & Goerge, R. M. (Eds.). (2006). *Indicators of children's well-being.* Dordrecht: Springer Publisher.
- Ben-Arieh, A., Kaufman, N. H., Andrews, A. B., Goerge, R. M., Lee, B. J., & Aber, J. L. (2001). *Measuring and monitoring children's well-being.* Dordrecht, Netherlands: Kluwer.
- Ben-Arieh, A., Casas, F., Frones, I., & Korbin, J. (Eds.) (2014). *Handbook of Child Well-Being,* Springer Publisher.
- Bradshaw, J., & Richardson, D. (2009). "An Index of child well-being in Europe," *Child Indicators Research*, 2(No.,3), 319–351.
- Bradshaw, J., Noble, M., Bloor, K., Huby, M., McLennan, D., Rhodes, D., Sinclair, I., & Wilkinson, K. (2009). A child well-being index at small area level in England. *Child Indicators Research*, 2(2), 201–220.
- Brown, B. V. (Ed.). (2008). *Key indicators of child and youth well-being: Completing the picture.* Mahwah, NJ: Lawrence Erlbaum.
- Brown, B.V., & Moore, K.A. (2007). An overview of state-level data on child well-being available from the Federal Statistical System, Child Trends, Washington, DC.
- Burd-Sharp, S., Guyer, P., Lechterman, T., & Lewis, K. (2012). Child Well-Being in the US: Proposal for the development of a "Tots Index" using the Human Development Framework. In A. Minujin & S. Nancy (Eds.), *Global child poverty and well-being: measurement, concepts, policy and action* (pp. 155–178). Bristol UK: The Policy Press.
- Campbell, F., Gonti, G., Heckman, J. J., Moon, S. H., Pinto, R., Pungello, E., & Pan, Y. (2014). Early child hood investments substantially boost adults health. *Science*, 343(61778), 1478–1485.
- Child Trends (2013). *Changing the Course for Infants and Toddler*, Publication # 2013–36, Child Trends, Washington, DC.
- Cohen, P. (1998a). "State Policies, Spending and Kids Count Indicators of Child Well
- Cummings, R. A. (1996). The domains of life satisfaction: an attempt to order chaos. *Social Indicators Research*, 38, 3030–3328.
- Duncan, G. J., Yeung, W. J., Brooks-Gunn, J., & Smith, J. R. (1998). How much does childhood poverty affect the life chances of children. *American Sociological Review*, 63(No. 3), 406–423.
- Education Commission of the States (2013). *State Pre-K Funding: 2012–2013 School, Year*, Education Commission of the States, Denver CO.
- Education Commission of the States (2014). *State Pre-K Funding: 2013–2014 Fiscal. Year*, Education Commission of the States, Denver CO.
- Engels, S. M., Field, C. & Finkelhor, D., (2000), *State Child Well-Being Ranking: Alternative Approaches*, Family Research Laboratory, University of New Hampshire accessed at www.unh.edu/frl on 31 Oct 2005.
- Every Child Matters Education Fund (2008), *Geography Matters: Child Well-Being in the States*, Every Child Matters Fund, Washington DC. Page 7.
- Finegold, K., Wherry, L., & Schardin S., (2004). Block Grants: Historical Overview and Lessons Learned. No. A-63 in Series, "New Federalism: Issues and Options for States." The Urban Institute, Washington, DC.

- First Focus (2011). Children's Budget 2011, First Focus, Washington, DC, press release Foundation for Child Development (2013) Child wellbeing Index.
- Gormley, W. T. (2012). *Voices for children: Rhetoric and public policy*. Washington, DC: Brookings Institution Press.
- Haggerty, M. R., & Land, K. C. (2007). Constructing summary indices of quality of life: a model for the effect of heterogeneous importance weights. *Sociological Methods and Research*, 35(May), 455–496.
- Hahn, H., Isaacs, J., Edelstein, S., Steele, S., & Steurele, E. (2014). *Kids Share 2014: Report on Federal Expenditures on Children Through 2013*, The Urban Institute, Washington, DC.
- Harknett, K., Garfinkel, I., Bainbridge, J., Smeeding, T., Folbre, N., & McLanahan, S. (2003). "Do Public Expenditures Improve Child Outcomes in the U.S.: A Comparison Across the Fifty States," Center for research on Child well-Being, Princeton, University, Working paper #03-02, Princeton NJ.
- Hauser, R. M., Brown, B., & Prosser, W. (Eds.). (1997). *Indicators of children's well-being*. New York: Russell Sage.
- Heckman, J. J. (2011). "The economics of inequality: The value of early childhood education." *The American Educator*. <http://www.aft.org/pdfs/americaneducator/spring2011/Heckman.pdf>
- Hur, Y., & Testerman, R. (2012). An index of child well-being at the local level in the U.S. The Case of North Carolina Counties. *Child Indicators Review*, 5(1), 29–54.
- Isaacs, J., Hahn, H., Rennane, S., & Steuerle, E., Vericker, T., (2011). *Kids share 2011: Report on federal expenditures on children through 2010*: Brookings/Urban Institute, Washington, DC.
- Karoly, L. A., Kilburn, M. R., & Cannon, J. S. (2005). *Early Childhood Interventions: Proven results*. Future Promise: The Rand Corporation, Santa Monica, CA.
- Lamb, V., & O'Hare, W. P., (2013). "Scalability of the CWI: State-Level Indicators and Composite Indices" Chapter 7 in *The Well-Being of America's Children: Developing and Improving the Child and Youth Well-Being Index*, Editor Kenneth C. Land.
- Lamb, V. L., & Land, K. C., (2014). "Methodologies Used in the Construction of Composite Child Well-Being Indices," in *Handbook of Child Well-Being*, pp 3043–3067., Ben-Arieh, A., Casas, F., Frones, I., and Korbin, J. (Editors) Springer Publisher.
- Land, K. C., (2008). 2008 Special Focus Report: Trends in Infancy/Early Childhood and Middle Childhood Well-Being, 1994–2006, The Foundation for Child Development Child and Youth Well-Being Index (CW) Project, the Foundation for Child Development, New York NY.
- Lau, M., & Bradshaw, J. (2010). Child Well-Being on the Pacific Rim. *Child Indicators Research*, 3(No. 3), 374.
- Moore, K. A., Murphey, D., Bandy T., & Lawner, E., (2014). "Indices of Child Well-Being and Developmental Context," in *Handbook of Child Well-Being*, pp 3043–3067., Ben-Arieh, A., Casas, F., Frones, I., and Korbin, J. (Eds.) Springer Publisher.
- Murphey, D., Cooper, M., & Forry, N. (2013). *The Youngest Americans: A Statistical Portrait of Infants and Toddlers in the United States*, Robert R. McCormick Foundation and Child Trends, Child Trends, Washington, DC.
- Naar-King, S., Ellis, D. A., & Frey, M. A. (2004). *Assessing children's well-being: A hand book of measures*. Mahwah, NJ: Lawrence Erlbaum.
- National Research Council (2000). From Neurons to Neighborhoods: The Science of Early Childhood Development, Committee on Integrating the Science of Early Childhood development. J.P. Shonkoff, D.A. Phillips (Eds.) Washington DC. National Academy Press.
- O'Hare, W. P. (2006). *Developing state indices of child well-being*. Washington, DC: Brookings Institute.
- O'Hare, W. P. (2013). A case study of data-based child advocacy: the KIDS COUNT Project. *Child Indicators Research*, 6(1), 33–52.
- O'Hare, W. P. (2014). A research note on statistical methods used to create indices of child well-being. *Child Indicators Research*. doi:10.1007/s12187-014-9244-8.
- O'Hare, W. P., & Gutierrez, F. (2012). The use of domains in constructing a comprehensive composite index of child well-being. *Child Indicators Research*, 5(4), 609–630.
- O'Hare, W.P., & Lee, M., (2007). Factors Affecting State Differences in Child Well-Being, KIDS COUNT Working Paper, The Annie E. Casey Foundation, Baltimore, MD, available online at www.kidscount.org.
- O'Hare, W. P., & Vandivere, S. (2011). "States Ranked on the Well-Being of Children in Low-Income Families: 2007", KIDS COUNT Working Paper, The Annie E. Casey Foundation, Available online at www.kidscount.org.
- O'Hare, W. P., Mather, M., Dupuis, G., Land, K. C., Fu, Q., & Lamb, V. L. (2013). Analyzing differences in child well-being among U.S. States. *Child Indicators Research*, 6(2), 401–431.
- Organisation for Economic Cooperation and Development (2008). Handbook on constructing composite indicators: Methodology and user guide, OECD, Paris, France.

- Organization for Economic Cooperation and Development (2009). *Doing Better for Children*, Chapter 2, "Comparative Child Well-Being Across the Organization for Economic Cooperation and Development, Paris, France.
- Oser, C., & Cohen, J. (2003). *America's Babies: The Zero to Three Policy Center Data Book*, Zero to Three Policy Center, Washington, DC.
- Patterson, K., & O'Hare, W. P. (2014). A New Assessment of Changes Over Time and Differences Across States in the Well-Being of Children in the U.S., Paper delivered at the Southern Demographic Association Conference, October, 30–31, Memphis, TN.
- Pollard, E. L., & Lee, P. D. (2002). Child well-being: a systematic reviews of the literature. *Social Science Indicators Research*, *61*, 59–78.
- Red Por Los Derechos de la Infancia (2013). *La Infancia Cuenta*, Red Por Los Derechos de la Infancia. Mexico City, Mexico, available at www.infanciacuenta.org.
- Schweinhart, L. J., Montie, J., Xiang, Z., Barnett, W. S., Belfield, C. R., & Nores, M. (2005). "The High/Scope Perry Preschool Study Through Age 40: Summary, Conclusions, and Frequently Asked Questions."
- The Annie E. Casey Foundation (2002). The Right Start for Americas Newborns: A Decade of City and State Trends, 1990–1999, available at <http://www.aecf.org/KnowledgeCenter/Publications.aspx?pubguid=%7B3F5C9A6B-5A6B-48A3-A50C-5CD3CEFA7778%7D>
- The Annie E. Casey Foundation (2013). KIDS COUNT REPORT, The Annie E. Casey Foundation, Baltimore, MD. Available at www.kidscount.org.
- The Annie E. Casey Foundation (2013). The First Eight Years: Giving Kids a Foundation for Lifetime Success, the Annie E. Casey Foundation, Baltimore, MD. Available online at www.kidscount.org.
- The Annie E. Casey Foundation (2014b). *Race for Results*, The Annie E. Casey Foundation, Baltimore, MD.
- UNICEF (2007). *Child poverty in perspective: An overview of child well-being in rich countries*, Innocenti Report Card No. 7, UNICEF Innocenti Research Centre, Florence, Italy.
- UNICEF Innocenti Research Centre (2006). *Child poverty in perspective: An overview of child well-being in rich countries; A comprehensive assessment of the lives and well-being of children and adolescents in the economically advanced nations*. UNICEF Innocenti Research Centre Report Card 7, Florence, Italy.
- UNICEF Innocenti Research Center (2013). *Child Well-Being in Rich Countries: A Comparative Overview*, Report Card 11, Innocenti Research Centre, Florence Italy.
- Vandivere, S. O'Hare, W.P., Atienza, A., and Rivers, K. (2007). *State Rankings of well-being of children in Low-Income Families*, KIDS COUNT Working Paper, The Annie E Casey Foundation, Baltimore, MD.
- Whitaker, I. P. (2001). Unequal opportunities among unequal states: the importance of examining state characteristics in making social welfare policies regarding children. *Journal of Children and Poverty*, *7*(2), 145–162.
- Winston, P., & Castañeda, R. M. (2007). Assessing federalism: ANF and the recent evolution of American social policy federalism. Urban Institute, Discussion Papers 07–01. Accessed online at www.urban.org/UploadedPDF/411473_assessing_federalism.pdf
- Zill, N. (2006). "Are All Indicators Created Equal? Alternatives to an Equal Weighting Strategy in the Construction of a Composite Index of Child Well-Being," accessed online at www.fcd-us.org/PDFs/ZillPaper.pdf,21, 2006.