Creation of a Child Well-Being Index Using the Survey of Income and Program Participation

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Introduction

- Why develop a child well-being index using SIPP data?
  - —Interest in child well-being among academics, policy analysts, and statistical agencies
  - —Importance of understanding what factors influence child well-being. "The economic, social, and physical environment affect the likelihood that a child will grow to be a well-educated, economically stable, productive, healthy adult" (Federal Interagency Forum on Child and Family Statistics, 2011)
  - —Index allows tracking of changes in child well-being across time for both groups of children, and for individual children in the survey Child Well-Being Index would be available to SIPP data users for use in research

Framework

- Using the Child and Youth Well-Being Index (CWI) developed by Kenneth Land as framework (Land et al. 2001)
- Land's index uses national rates and indicators, SIPP child well-being index uses characteristics for individual children
- Land identifies seven domains:
  - —material well-being
  - —health
  - —safety
  - —productive activity
  - —place in community
  - —social relationships
  - —emotional well-being

Potential SIPP Indicators for Child Well-Being Domains

Domain	SIPP Indicator
Material Well-Being	Monthly Family Poverty Range Monthly Family Income Range Mother (or Guardian) Educational Attainment Parental Employment Status Health Insurance Coverage
Health	Self-reported Health Status Disability Status Activity Limitation Status
Safety	Presence of safe places to play outside Presence of danger in community Presence of trustworthy adults in neighborhood Presence of neighbors parent can count on
Productive Activity	On-track School Enrollment Enrollment in Gifted Classes
Place in Community	Participation in clubs, sports, lessons Frequency of weekly outings with parents
Social Relationships	Two-Parent Family Residence Change in Last Year
Emotional Well-Being	School engagement : Child likes school Child is interested in schoolwork Child works hard in school Parent's engagement with child: Parent reads to child Parent talks to or plays with child Parent praises child Parent eats breakfast with child Parent eats dinner with child

Data-2008 SIPP Panel

- SIPP is a nationally-representative, longitudinal survey of the non-institutionalized population
- Respondents are usually in sample for 3-4 years
- Interviews are conducted every four months
- 2008 Panel Wave 4 Core and Child Well-Being Topical Module data, covering the period from May-November 2009
- 2008 Wave 4 SIPP Sample – 43,000 eligible households, 36,000 interviewed households
  - —Sub-sample of school-age children (5-17): 16,652 (weighted to represent 52.5 million children between the ages of 5-17 in the United States)

Analysis

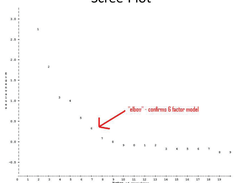
- Use Factor Analysis to determine if indicators group into domains
  - —Ran factor analysis for all indicators
  - —Because domains are correlated with each other, I used an oblique rotation method.
  - —After examining factor loadings, I dropped a number of variables that did not load definitively on any one factor: Parental employment status, Health Insurance Coverage, Self-reported Health Status, Disability Status, Activity Limitation Status, On-track school enrollment, Frequency of weekly outings with parents, Residence Change in Last Year, Parents read to child
  - —Ran factor analysis again with reduced model
  - —Used average eigenvalue and scree plot to determine how many factors to keep in model

Eigenvalues

Eigenvalues of Reduced Correlation Matrix: Total= 6.214 Average Eigenvalue: 0.327
(eigenvalues shown for 6 factors above average)

Factor	Eigenvalue	Proportion of Variation	Cumulative Proportion of Variation
1	2.726	0.439	0.439
2	1.870	0.301	0.740
3	1.123	0.181	0.921
4	0.989	0.159	1.080
5	0.569	0.092	1.171
6	0.327	0.053	1.224

Scree Plot



Factor Scores

Sample Factor Scores (Standardized Regression Estimates using obliquely rotated factors)

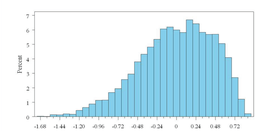
Variables	Factor 1 Socio-Economic Characteristics*	Factor 2 School Engagement*	Factor 3 Safety*	Factor 4 Parental Support*	Factor 5 Social Interaction*	Factor 6 Parental Involvement*
Monthly Family Poverty Range	0.897	-0.003	-0.005	0.036	-0.031	-0.066
Monthly Family Income Range	0.929	0.001	-0.005	-0.007	-0.055	0.003
Mother's Educational Attainment	0.349	-0.016	0.012	0.093	0.249	-0.030
Two-parent family	0.419	0.018	0.044	-0.168	0.023	0.205
Child likes school	0.004	0.755	0.014	-0.017	0.017	-0.015
Child is interested in schoolwork	0.001	0.824	-0.022	-0.001	-0.006	0.008
Child works hard in school	-0.002	0.728	0.005	0.023	0.009	0.022
Presence of safe places to play outside	0.036	-0.016	0.535	0.001	0.016	0.015
Presence of danger in community	0.078	-0.018	0.391	0.018	0.082	-0.031
Presence of trustworthy adults in neighborhood	-0.043	0.017	0.653	0.012	-0.025	-0.039
Presence of Neighbors parent can count on	-0.006	0.007	0.640	-0.012	-0.027	0.036
Parent praises child	-0.005	0.011	-0.004	0.728	-0.002	0.065
Parent talks to/plays with child?	-0.033	-0.005	0.015	0.740	-0.003	0.0135
Enrollment in gifted classes	-0.001	0.097	-0.007	0.001	0.335	-0.101
Participation in clubs	-0.017	-0.033	-0.001	-0.026	0.509	0.027
Participation in sports	0.051	0.025	0.043	0.003	0.349	-0.062
Participation in lessons	0.019	-0.017	-0.009	-0.009	0.502	0.081
Parent eats dinner with child	-0.012	0.003	-0.030	0.064	-0.036	0.429
Parent eats breakfast with child	0.090	0.018	0.016	0.052	0.003	0.434

*factors named based on indicator loading

How Child Well-Being Index is Created

- Calculate each indicator's distance from the mean and assign a z-score to each indicator (Bradshaw, Hoelscher, and Richardson, 2006)
- Once z-score is assigned, average z-scores for indicators within the same domain
- Weight each domain based on proportion of cumulative variation for each of six retained factors
- Add weighted average z-scores for each domain

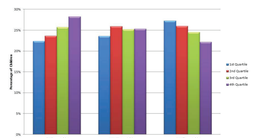
Child Well-Being Index Score Distribution



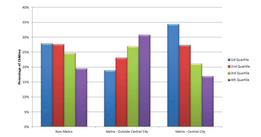
Interpreting Child Well-Being Score

- In order to aid in the interpretation of the index, I divided the sample into quartiles based on each child's index score.
- Distributions by various demographic characteristics are displayed in the charts here.

Child Well-Being Index Score Quartile by Age



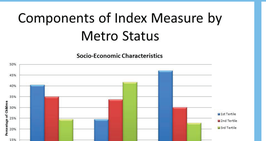
Child Well-Being Index Score Quartile by Metro Residence



Child Well-Being Index Score Quartile by Sex

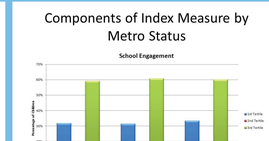
Components of Index Measure by Metro Status

Socio-Economic Characteristics



Components of Index Measure by Metro Status

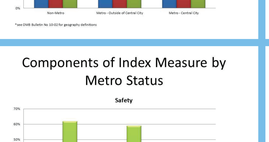
School Engagement



Child Well-Being Index Score Quartile by Race

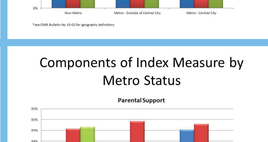
Components of Index Measure by Metro Status

Safety



Components of Index Measure by Metro Status

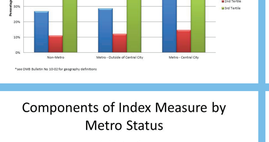
Parental Support



Child Well-Being Index Score Quartile by Hispanic Origin

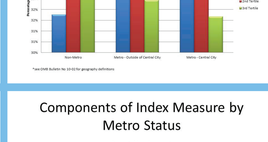
Components of Index Measure by Metro Status

Social Interaction



Components of Index Measure by Metro Status

Parental Involvement



Next Steps

- Calculate child well-being index scores for Wave 10 of 2008 panel. Wave 10 covers the time period from May-November 2011
- Compare child well-being index scores for same group of children from Wave 4 to Wave 10
- Compare child well-being index scores across children in the same family
- Create index in comparable, non-Census datasets and compare to SIPP
- Identify other SIPP projects that could benefit from using child well-being index score

References

Bradshaw, Jonathan, Petra Hoelscher and Dominic Richardson. 2006. "An Index of Child Well Being in the European Union". Social Indicators Research. 80:133-177.

Federal Interagency Forum on Child and Family Statistics. America's Children: Key National Indicators of Well-Being, 2011. Washington, DC: U.S. Government Printing Office.

Land, Kenneth C., Vicki Lamb, and Sarah Kahler Mustillo. 2001. "Child and Youth Well-Being in the United States, 1975-1998: Some Findings from a New Index." Social Indicators Research. 56: 241-320.

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