

Methodology

Calculation of Conditions for Children’s Well-being Score

A previous study by Berry and Jarrell (1999) used 1990 census tract data to calculate a composite measure to determine geographic areas of need in Delaware. However, Berry and Jarrell focused on the population in general. The present report sought to update and refine the previous study by using more recent data, developing a more sensitive composite measure, and shifting the focus to children.

The inspiration for the Conditions for Children’s Well-being Score (CCWBS) was a 2003 report by the Annie E. Casey Foundation (AECF) and the Population Reference Bureau (PRB) entitled *The Growing Number of Kids in Severely Distressed Neighborhoods: Evidence From the 2000 Census*. Although the AECF/PRB report was somewhat different and it did not include a composite score, it did use data from SF3 to measure the number of children whose well-being was at risk in the 50 states and the District of Columbia.

The CCWBS is a composite measure based on the following four indicators from SF3.

1. Percent of households with related children – female headed (no husband present)
2. Percent of population below 100% of poverty
3. Percent of persons 25 and over that are high school dropouts
4. Percent of men 16 to 64 that are unemployed or not in the labor force

These indicators were selected because of their direct impact on conditions for children. For each indicator, a higher percent would indicate worse conditions for children’s well-being.

Each of the indicators was weighted equally in the composite score. A converted score measuring the variation of each indicator from the state value was calculated using the following formula.

CS = converted score for the indicator
StV = state value/percent for the indicator
TrV = tract value/percent for the indicator

$$CS = \frac{(StV - TrV)}{StV} \times 5 + 25$$

This formula accomplished two important goals. First, it captured the relative variation on each indicator for each tract from the state value. Second, it standardized the variation across indicators. In this case, a tract value that was the same as the state value would have a converted score of 25. A tract value that was higher than the state value (i.e., worse conditions) would have converted score less than 25, and a tract value that was lower than the state value (i.e., better conditions) would have converted score greater than 25.

less than 2525more than 25
worse than state average.....state average better than state average

The final CCWBS for a tract was calculated by adding the converted scores across all four indicators. Therefore, a score of 100 would be given to a tract at the state average on all four indicators. The following is an example of the calculation of converted scores for each indicator and the CCWBS for tract 401.

CS1 = converted score for indicator 1
CS2 = converted score for indicator 2
CS3 = converted score for indicator 3
CS4 = converted score for indicator 4
CCWBS = Conditions for Children’s Well-being Score

$$CS1 = \frac{(23.1 - 15.2)}{23.1} \times 5 + 25 = 26.72$$

$$CS2 = \frac{(9.2 - 11.9)}{9.2} \times 5 + 25 = 23.56$$

$$CS3 = \frac{(17.4 - 32.8)}{17.4} \times 5 + 25 = 20.57$$

$$CS4 = \frac{(23.4 - 23.2)}{23.4} \times 5 + 25 = 25.06$$

$$CCWBS = 26.72 + 23.56 + 20.57 + 25.06 = 95.91 \approx 95.9$$

The CCWBS is calculated by adding the converted score for each of the four indicators. Therefore, a census tract with indicator scores of 27, 24, 21, and 25 has a CCWBS score of 97.

¹ The present report and the PRB report used three of the same indicators. The only measure that was different was the measure of educational attainment. In the PRB report, the indicator teens 16 to 19 that were high school dropouts was used. The present report used persons 25 and over that were high school dropouts.



Comparison to Delaware

A “Compared to Delaware” rating was created for each tract for the CCWBS and each of the four indicators. The rating consists of five categories ranging from worse to better. The break points for the categories were determined by ranking the converted scores and dividing the ranked scores into quintiles (i.e., categories with approximately the same number of tracts).

The ratings for each tract on the four indicators and the CCWBS are shown in the second section that contains the one-page profiles. The geographic distribution of the CCWBS ratings is shown in the maps in sections one, three, and four.

Caveat Regarding Variation in Scores

Since all the four CCWBS indicators were obtained from SF3 and SF3 data are based on a sample of Delaware residents, the individual indicators and the final CCWBS are subject to sampling error. In short, the indicators and CCWBS are estimates for each tract rather than a complete census count of every resident of a tract. As a result, small differences between CCWBS or one of its indicators in two different tracts may not be meaningful. Therefore, comparisons of individual CCWBS between tracts are not recommended. In general, it is better to focus on the category/quintile in which a tract(s) falls. Even among the quintiles, tracts with scores that differed by small amounts often occurred near the break points for those quintiles.

Results

The table below shows the number and percent tracts in each county assigned to the five quintiles using the CCWBS.

Number and Percent of Tracts by County and Quintile

County	Conditions for Children’s Well-being					Total
	Worse	←-----→	-----→	Better		
	Quintile 1	Quintile 2	Quintile 3	Quintile 4	Quintile 5	
New Castle	27 (21.4%)	17 (13.5%)	16 (12.7%)	28 (22.2%)	38 (30.2%)	126 (100.0%)
Kent	7 (20.6%)	8 (23.5%)	15 (44.1%)	3 (8.8%)	1 (2.9%)	34 (100.0%)
Sussex	5 (13.9%)	14 (38.9%)	9 (25.0%)	8 (22.2%)	0 (0.0%)	36 (100.0%)
State	39 (19.9%)	39 (19.9%)	40 (20.4%)	39 (19.9%)	39 (19.9%)	196 (100.0%)

If conditions for children as measured by the CCWBS were randomly spread out across the counties, it would be expected that approximately 20% of the tracts within each county would fall in each quintile. However, the table above clearly suggests that the counties did not follow that pattern. In order to test whether the tract ratings differed from a random distribution within the counties, a series of chi-square goodness-of-fit tests was conducted.

In Kent County, a significantly higher number of tracts than expected were in quintile 3 ($x^2 = 11.767$, $df=1$, $p<.01$). Fewer than 12% of the Kent County tracts fell in quintiles 4 and 5 when nearly 40% would have been expected ($x^2 = 11.151$, $df=1$, $p<.01$).

In New Castle County, a significantly higher number of tracts than expected were in quintile 5 ($x^2 = 8.146$, $df=1$, $p<.01$). In fact, only one of the 39 tracts in quintile 5 was not in New Castle County.

In Sussex County, a significantly higher number of tracts than expected were in quintile 2 ($x^2 = 8.146$, $df=1$, $p<.01$). No Sussex County tracts fell in quintile 5.

2 Since there were 196 tracts that needed to be divided over five categories, 40 tracts were assigned to the middle quintile and 39 tracts were assigned to each of the other four quintiles.

Definition of Census Terms¹

Ability to Speak English

Data on ability to speak English were derived from the answers to long-form questionnaire² Item 11c, which was asked of a sample of the population. Respondents who reported that they spoke a language other than English in long-form questionnaire Item 11a were asked to indicate their ability to speak English in one of the following categories: “Very well,” “Well,” “Not well,” or “Not at all.”

The data on ability to speak English represent the person’s own perception about his or her own ability or, because census questionnaires are usually completed by one household member, the responses may represent the perception of another household member. Respondents were not instructed on how to interpret the response categories in Question 11c.

Family Type

A family includes a householder and one or more other people living in the same household who are related to the householder by birth, marriage, or adoption. All people in a household who are related to the householder are regarded as members of his or her family. A family household may contain people not related to the householder, but those people are not included as part of the householder’s family in census tabulations. Thus, the number of family households is equal to the number of families, but family households may include more members than do families. A household can contain only one family for purposes of census tabulations. Not all households contain families since a household may be comprised of a group of unrelated people or of one person living alone. Families are classified by type as either a “married-couple family” or “other family” according to the presence of a spouse. “Other family” is further broken out according to the sex of the householder. The data on family type are based on answers to questions on sex and relationship that were asked on a 100-percent basis.

Married-couple family. This category includes a family in which the householder and his or her spouse are enumerated as members of the same household.

Other family:

Male householder, no wife present. This category includes a family with a male maintaining a household with no wife of the householder present.

Female householder, no husband present. This category includes a family with a female maintaining a household with no husband of the householder present.

Non-family household. This category includes a householder living alone or with non-relatives only.

Gross Rent

The data on gross rent were obtained from answers to long-form questionnaire Items 45a-d which were asked on a sample basis. Gross rent is the contract rent plus the estimated average monthly cost of utilities (electricity, gas, water and sewer) and fuels (oil, coal, kerosene, wood, etc.) if these are paid by the renter (or paid for the renter by someone else). Gross rent is intended to eliminate differentials that result from varying practices with respect to the inclusion of utilities and fuels as part of the rental payment. The estimated costs of utilities and fuels are reported on an annual basis but are converted to monthly figures for the tabulations. Renter units occupied without payment of cash rent are shown separately as “No cash rent” in the tabulations.

Hispanic or Latino Origin

The data on the Hispanic or Latino population, which was asked of all people, were derived from answers to long-form questionnaire Item 5, and short-form questionnaire Item 7. The terms “Spanish,” “Hispanic origin,” and “Latino” are used interchangeably. Some respondents identify with all three terms, while others may identify with only one of these three specific terms. Hispanics or Latinos who identify with the terms “Spanish,” “Hispanic,” or “Latino” are those who classify themselves in one of the specific Hispanic or Latino categories listed on the questionnaire — “Mexican,” “Puerto Rican,” or “Cuban” — as well as those who indicate that they are “other Spanish, Hispanic, or Latino.” People who do not identify with one of the specific origins listed on the questionnaire but indicate that they are “other Spanish, Hispanic, or Latino” are those whose origins are from Spain, the Spanish-speaking countries of Central or South America, the Dominican Republic, or people identifying themselves generally as Spanish, Spanish-American, Hispanic, Hispano, Latino, and so on. All write-in responses to the “other Spanish/Hispanic/Latino” category were coded.

Origin can be viewed as the heritage, nationality group, lineage, or country of birth of the person or the person’s parents or ancestors before their arrival in the United States. People who identify their origin as Spanish, Hispanic, or Latino may be of any race.

Household

A household includes all of the people who occupy a housing unit. (People not living in households are classified as living in group quarters.) A housing unit is a house, an apartment, a mobile home, a group of rooms, or a single room occupied (or if vacant, intended for occupancy) as separate living quarters. Separate living quarters are those in which the

1 All information in this section comes directly from technical documentation from the U.S. Census Bureau. See References for the source document.

2 The questionnaire referred to in this section is the 2000 census form.

occupants live separately from any other people in the building and that have direct access from the outside of the building or through a common hall. The occupants may be a single family, one person living alone, two or more families living together, or any other group of related or unrelated people who share living quarters. In 100-percent tabulations, the count of households or householders always equals the count of occupied housing units. In sample tabulations, the numbers may differ as a result of the weighting process.

Not in Labor Force

All people 16 years old and over who are not classified as members of the labor force. This category consists mainly of students, individuals taking care of home or family, retired workers, seasonal workers enumerated in an off-season who were not looking for work, institutionalized people (all institutionalized people are placed in this category regardless of any work activities they may have done in the reference week), and people doing only incidental unpaid family work (fewer than 15 hours during the reference week).

Poverty Status in 1999

The poverty data were derived from answers to long-form questionnaire Items 31 and 32, the same questions used to derive income data. The Census Bureau uses the federal government's official poverty definition. The Social Security Administration (SSA) developed the original poverty definition in 1964, which federal interagency committees subsequently revised in 1969 and 1980. The Office of Management and Budget's (OMB's) Directive 14 prescribes this definition as the official poverty measure for federal agencies to use in their statistical work.

The poverty status of families and unrelated individuals in 1999 was determined using 48 thresholds (income cutoffs) arranged in a two dimensional matrix (see below). The matrix consists of family size (from 1 person to 9 or more people) cross-classified by presence and number of family members under 18 years old (from no children present to 8 or more children present). Unrelated individuals and 2-person families were further differentiated by the age of the reference person (RP) (under 65 years old and 65 years old and over).

To determine a person's poverty status, one compares the person's total family income with the poverty threshold appropriate for that person's family size and composition (see table). If the total income of that person's family is less than the threshold appropriate for that family, then the person is considered poor, together with every member of his or her family. If a person is not living with anyone related by birth, marriage, or adoption, then the person's own income is compared with his or her poverty threshold.

Poverty Threshold in 1999										
by Size of Family and Number of Related Children Under 18 Years Old (Dollars)										
Size of family unit	Weighted average threshold	Related children under 18 years old								
		None	One	Two	Three	Four	Five	Six	Seven	Eight +
One person (unrelated individual)	8,501									
Under 65 years old	8,667	8,667								
65 years old and over	7,990	7,990								
Two people	10,869									
Householder under 65 years old	11,214	11,156	11,483							
Householder 65, years old and over	10,075	10,070	11,440							
Three people	13,290	13,032	13,410	13,423						
Four people	17,029	17,184	17,465	16,895	16,954					
Five people	20,127	20,723	21,024	20,380	19,882	19,578				
Six people	22,727	23,835	23,930	23,436	22,964	22,261	21,845			
Seven people	25,912	27,425	27,596	27,006	26,595	25,828	24,934	23,953		
Eight people	28,967	30,673	30,944	30,387	29,899	29,206	28,327	27,412	27,180	
Nine people or more	34,417	36,897	37,076	36,583	36,169	35,489	34,554	33,708	33,499	32,208

Race

The data on race, which was asked of all people, were derived from answers to long-form questionnaire Item 6 and short-form questionnaire Item 8. The concept of race, as used by the Census Bureau, reflects self-identification by people according to the race or races with which they most closely identify. These categories are socio-political constructs and should not be interpreted as being scientific or anthropological in nature. Furthermore, the race categories include both racial and national-origin groups.

The racial classifications used by the Census Bureau adhere to the October 30, 1997, Federal Register Notice entitled, "Revisions to the Standards for the Classification of Federal Data on Race and Ethnicity," issued by the Office of Management and Budget (OMB). These standards govern the categories used to collect and present federal data on race and ethnicity. The OMB requires five minimum categories (White, Black or African American, American Indian or Alaska Native, Asian, and Native Hawaiian or Other Pacific Islander) for race. The race categories are described below with a sixth category, "Some other race," added with OMB approval. In addition to the five race groups, the OMB also states that respondents should be offered the option of selecting one or more races.

Related Children

Related children include the sons and daughters of the householder (including natural-born, adopted, or stepchildren) and all other people under 18 years old, regardless of marital status, in the household, who are related to the householder, except the spouse of the householder. Foster children are not included since they are not related to the householder.

Telephone Service Available

The data on telephones were obtained from answers to long-form questionnaire Item 41, which was asked on a sample basis at occupied housing units. Households with telephone service have a telephone in working order and are able to make and receive calls. Households whose service has been discontinued for nonpayment or other reasons are not counted as having telephone service available.

Tenure

The data on tenure, which was asked at all occupied housing units, were obtained from answers to long-form questionnaire Item 33 and short-form questionnaire Item 2. All occupied housing units are classified as either owner occupied or renter occupied.

Owner occupied. A housing unit is owner occupied if the owner or co-owner lives in the unit even if it is mortgaged or not fully paid for. The owner or co-owner must live in the unit and usually is Person 1 on the questionnaire. The unit is “Owned by you or someone in this household with a mortgage or loan” if it is being purchased with a mortgage or some other debt arrangement, such as a deed of trust, trust deed, contract to purchase, land contract, or purchase agreement. The unit is also considered owned with a mortgage if it is built on leased land and there is a mortgage on the unit. Mobile homes occupied by owners with installment loans balances are also included in this category.

A housing unit is “Owned by you or someone in this household free and clear (without a mortgage or loan)” if there is no mortgage or other similar debt on the house, apartment, or mobile home including units built on leased land if the unit is owned outright without a mortgage.

The tenure item on the Census 2000 questionnaire distinguishes between units owned with a mortgage or loan and those owned free and clear. In the sample data products, as in the 100-percent products, the tenure item provides data for total owner-occupied units. Detailed information that identifies mortgaged and non-mortgaged units are provided in other sample housing matrices.

Renter occupied. All occupied housing units that are not owner occupied, whether they are rented for cash rent or occupied without payment of cash rent, are classified as renter occupied. “No cash rent” units are separately identified in the rent tabulations. Such units are generally provided free by friends or relatives or in exchange for services, such as resident manager, caretaker, minister, or tenant farmer. Housing units on military bases also are classified in the “No cash rent” category. “Rented for cash rent” includes units in continuing care, sometimes called life care arrangements. These arrangements usually involve a contract between one or more individuals and a service provider guaranteeing the individual shelter, usually a house or apartment, and services, such as meals or transportation to shopping or recreation.

Unemployed

All civilians 16 years old and over were classified as unemployed if they were neither “at work” nor “with a job but not at work” during the reference week, were looking for work during the last 4 weeks, and were available to start a job. Also included as unemployed were civilians 16 years old and over who: did not work at all during the reference week, were on temporary layoff from a job, had been informed that they would be recalled to work within the next 6 months or had been given a date to return to work, and were available to return to work during the reference week, except for temporary illness. Examples of job seeking activities were:

- Registering at a public or private employment office
- Meeting with prospective employers
- Investigating possibilities for starting a professional practice or opening a business
- Placing or answering advertisements
- Writing letters of application
- Being on a union or professional register

Vehicles Available

The data on vehicles available were obtained from answers to long-form questionnaire Item 43, which was asked on a sample basis at occupied housing units. These data show the number of passenger cars, vans, and pickup or panel trucks of 1-ton capacity or less kept at home and available for the use of household members. Vehicles rented or leased for 1 month or more, company vehicles, and police and government vehicles are included if kept at home and used for non-business purposes. Dismantled or immobile vehicles are excluded. Vehicles kept at home but used only for business purposes also are excluded.