

**Risk Factors for Children in the U.S., States, and Metropolitan Areas:
Data From the 2007 American Community Survey 1-Year Estimates**

Robert Kominski, U.S. Census Bureau
Diana Elliott, U.S. Census Bureau
Molly Clever, University of Maryland

Session 186: ACS in Applied Demography

Population Association of America
2009 Annual Meeting

Detroit, Michigan

Background

The literature on child well-being and the measurement of such is large and growing. Policy organizations like the Annie E. Casey Foundation, the Center on Children and Families at the Brookings Institution, and Child Trends, to name just a few, are focused on the issue of children, their life situations, and the threats and circumstances surrounding children in their everyday lives. These organizations routinely produce volumes of information that describe and explain how children are faring. Another effort, led by Ken Land and the Foundation for Child Development, has developed an index of 'child well-being,' which attempts to provide a single number summarization of the state of children in the United States. Released to the public each year, the 2006 version of the scale gave child well-being a score of 102.5.¹ The Federal Interagency Forum on Child and Family Statistics, a consortium of over 40 federal agencies, also produces an annual document, America's Children, which provides a collection of "key national indicators of well-being."² Numerous data collection activities, such as the Census Bureau's Survey of Income and Program Participation, also include routine data collections that focus on the status of children.

In virtually all of these activities, the most detailed level of explication available is to describe the status of children at the national level. The Annie E. Casey Foundation is a notable exception. In their yearly document, "Kids Count Data Book," they provide a small set of indicators that allow for the comparison of states to one another.³ In most cases, however, researchers attempting to identify points of variation at the sub-national level are left with scant, or no, data. Another mitigating problem is the lack of comparability for some indicators across geographic levels such as states.

Data

This analysis addresses a lack of sub-national data about children's well-being by relying on a new Census Bureau program designed to provide comparable data for the entire nation, as well as at very small geographic levels. The American Community Survey (ACS) was started in the late 1990's as the Census Bureau's program to replace the detailed long-form data collected once a decade as part of the decennial census with an ongoing continuous data collection that will provide information routinely for all parts of the country. This is done using a design that accumulates data collected over a series of years in order to provide "moving average" estimates for smaller and smaller geographic units. In the design currently in place, each month, the Census Bureau mails out about a quarter-million forms to sampled addresses across the country. Through a series of telephone and in-person follow-ups, a total sample of about 2.2 million households a year is realized. The ACS sample was also expanded in 2006 to include the population living in group quarters (including nursing homes, correctional facilities, military barracks, and college/university housing among others).

The collection activities for a single year allow the program to provide detailed data for geographic units in the country with a population size 65,000 and greater. This includes all states, congressional districts, over 1000 counties, and many of the major metropolitan areas in the United States. With accumulated data for 3 years, the program can produce estimates for geographic units of size 20,000 and greater. Finally, with the averaging of five years of data, the ACS will provide data for all small-scale geographies, such as census tracts and block groups, for the entire country, just as the decennial long-form produced once per decade. The difference, of course, is that since ACS data collection is ongoing, once the system reaches the 6th year of production, 5-year estimates can be 'updated' by dropping the oldest year of data and replacing it with the most current year. In this way, communities of all sizes will routinely be provided with annually updated information about themselves. More complete information about the ACS, its design, history and routine data products is available on the ACS website (<http://www.census.gov/acs/www/>).

¹ See: http://www.fcd-us.org/resources/resources_show.htm?doc_id=464418

² See: www.childstats.gov/americaschildren/

³ See: www.kidscount.org/datacenter/databook.org

In this specific analysis we have limited ourselves to data collected in the 2007 ACS. Data were collected for 73,590,243 children. As noted earlier, the sample includes both persons living in households as well as group quarters. Part of the goal of this analysis is to demonstrate the utility of ACS data to provide consistent estimates about children's risk factors not only for the country as a whole, but for states and the 363 current Metropolitan Areas in the country that are of size 65,000 or greater, and therefore part of the ACS single-year data release.

Methods

As noted earlier, there are many different approaches to the study of child well-being and correlates associated with this concept. In the volume produced by the Federal Interagency Forum, for example, seven major 'domains' of interest to the well-being of children are identified. These include such concepts as: Family & Social Environment; Economic Circumstances; Health Care; Physical Environment & Safety; Behavior; Education, and Health. Other research, such as that undertaken by Ken Land and colleagues, attempts to identify a fuller set of factors to address the full scope of child well-being. It is unlikely that any single data source can provide a complete set of indicators that would be able to address a full rendering of all of the components of well-being, and the ACS is no exception to this rule. What a single data set does provide is a consistency of scope and measurement such as to eliminate problems associated with incompatible data sources or measurement strategies. All of the data in the ACS are collected by a questionnaire that relies on answers provided by respondents. To the extent that there are imbedded measurement problems associated with this method, those problems are consistently present in the data. On the other hand, problems introduced by multiple data sources, changes in temporal reference of items, or the method of collection are not as likely to be a problem with the ACS.

From the ACS dataset we have identified a series of items that may be thought to have an impact on a child's life. We refer to these elements as "risk factors," which, if present, may be an indicator of conditions that might negatively impact the overall well-being chances for the child. This is a strategy used in other analyses.⁴ Some of these risk factors are characteristics of the child themselves; others relate to the characteristics of their parents or guardians; still others have to do with the economic circumstances of the household they are a part of; and several have to do with physical aspects of their living quarters. These four domains of risk are labeled as Individual, Familial and Household, Economic, and Physical Environment. The table below shows the 22 different risk factors in the four domains that have been identified in the ACS data. In this analysis there is no attempt to scale these items or to determine the relative import of these vis-a-vis one another. The focus in this work is to simply document the relative level of risk that occurs across the four domains, with an eye toward seeing whether the level varies to any large extent across important demographic subgroups or geographic areas.

The list below enumerates the 22 risk factors, grouped according to the domains they are part of. With 5 Individual, 7 Familial, 5 Economic and 5 Physical Environment factors, each of the four domains have similar representation. Of course, it is possible to argue that some factors represent more than one domain, and in some cases it may not be clear which domain is most appropriate for a given factor.

⁴ For example: 'At-Risk Conditions of School-Age Children', Kominski et al, <http://www.census.gov/population/www/documentation/twps0052/twps0052.html>, or: "Changes in the Lives of U.S. Children 1990-2000," Johnson, et al, <http://www.census.gov/population/www/documentation/twps0078/twps0078.html>

Individual	Familial and Household	Economic	Physical Environment
Presence of disability	Single parent household	Receives food stamps	Overcrowded household
Presence of multiple disabilities	Linguistically isolated household	Household receives public assistance	Household lacks complete kitchen
Not enrolled in school	Non-English speaking household	Household below poverty	Household lacks complete plumbing
Speaks English less than very well	Parent(s) foreign born and in U.S. for 5 years or less	No employed parent in household	Rented home
Child is foreign born and in U.S. for 5 years or less	Parent(s) has less than high school education	Chronic unemployment in household	Not a single family home
	Cared for by grandparent		
	Cared for by grandparent for 3 or more years		

A simple counting tally of the 22 factors provides a rough idea of the degree of risk experienced by children. As Table 1 shows, a sizably large number and proportion of children actually have none of the 22 risk factors. Over 23 million children, or 31.5% of all children under age 18, do not exhibit a single risk factor. Another 32.5% have only 1 or 2 of the risk factors. No children reported all 22 of the risk factors, and the single largest number reported was just 15 of the 22 factors. Just 3.0% of all children had 8 or more of the 22 risk factors.

Of course, not all factors occur in the population at equal levels. As Table 2 shows, there is wide variation in the number and proportion of children who experience each of the specific risk factors. Overall, 31.4% of all children live in a household without both parents present. Relatively few children (just 0.4%) live in a household that lacks complete kitchen or plumbing facilities. Each of the four domains has at least one risk factor that exceeds 10.0%, and the population being counted matters for the high percentages in some cases. For example, 25.1% speak English less than very well because the population is restricted to those who do not speak English at home.

With a list as long as this one the possibility arises that some of the factors may be measuring the same thing. One simple way to examine this is to inspect the intercorrelations among the factors for individuals. Table 3 shows the correlations between the 22 different factors. Of the 231 inter-item correlations, just 4 have an estimated value of 0.5 or more, and several of these are obvious, such as the correlation between a foreign born child and a foreign born parent (0.51), or the correlation between complete plumbing and complete kitchen facilities (0.55). The vast majority of correlations in the matrix are below 0.1, indicating that there is not a strong level of redundancy in the risk factors.

A different approach is to look at the degree to which factors from one domain occur in common with another domain, as is shown in Table 4. The correlation between Economic and Familial domains is about .4, as is the association between the Economic and Physical Environment domains, and the Familial and Physical Environment domains. Only the items of the Individual domain correlate at much lower levels with the other three domains. Simply put, households with economic issues are also likely to have issues with the physical conditions where they live and some of the family circumstances associated with the household. As such, there is some indication of possible overlap among the domains, but for this exercise we have chosen not to focus on scale optimization, and have elected to keep all 22 risk factors in the mix.

Demographic Distribution of Risk Factors

The first level of examination is to ask whether levels of risk vary across key socio-demographic subgroups of the population. The data for this issue are presented in Table 5. As is seen in the table, the average number of risk factors for children in the United States is about 2.18. Looking at various subgroups, it is clear that there is some variation. There is no difference apparent between boys and girls. Younger children have a slightly greater risk than older children. Across race groups, White children express the

lowest level average level of risk at 1.68, while those in the “Other”⁵ race category have over twice as many risk factors on average, at 4.03. Hispanic children have a relatively high level of risk at 3.75 compared to non-Hispanic children.

Table 5 also provides a bit more detail in showing the distribution of risk factors for these various demographic subgroups. As noted earlier, 31.5% of all children experience no risk factors whatsoever. For White children, this level of absence of risk is even higher at 40%, but for children in the “Other” race category it is just 6.5%. Among children of Hispanic origin, 9.1% experience no risk factors. Conversely, just 1.9% of White children experience 8 or more risk factors, but for children in the “Other” race category, the proportion experiencing large numbers of risk factors is much higher at 10%. Those of Hispanic origin are more likely to experience 8 or more risk factors compared to those who are non-Hispanic, at 8.6% and 1.5% respectively. It is important to note, however, that children of Hispanic origin may be more likely to experience higher risk factors simply because of the definitions of the risk factors. This is particularly the case for new immigrants, whether they are Hispanic or not. For example, a child who is a new immigrant could potentially have five risk factors upon moving to the country (speaking English less than very well; being foreign born and in the U.S. for less than 5 years; having a linguistically isolated household; having a Non-English speaking household; and having parents who are foreign born and in the U.S. for less than 5 years). So, the high percentage of Hispanic children at “risk” could be attributed, in part, to some of these children being recent immigrants. Overall, the data do not demonstrate massively large amounts of variation, but it is clear that some children have less risk exposure than others.

Table 6 expands this discussion to look at specific risk factors for these various subpopulations. As is evident, the level of risk for both specific factors and the domain categories, show that sizable variation sometimes occurs. While 62.7% of Black children live in a household with a single parent, just 16.2% of Asian children do. For Hispanic children, 42.7% of them have at least one parent who has not finished high school, but for non-Hispanic children this level is just 11.1%.

While for some of these specific factors, Hispanic or Black children have levels of risk that are among the highest values, it is also the case that for other factors American Indian, or children in the “Other” race category have among the highest levels. Some factors, like long-term care by grandparents, on incomplete kitchen/plumbing facilities in the dwelling, are relatively low for nearly all demographic groups. Thus, it is not the case that one single group dominates across all factors, or that all factors occur at about the same level. Instead, the 22 specific factors touch on the diversity of risk across many segments of the child population.

Geographic Distribution of Risk

One of the great virtues of the ACS program is its ability to provide data and information at much more detailed geography than most other ongoing data systems. Table 7 shows the distribution of risk across larger geographic entities like the four census regions, as well as in metropolitan and non-metropolitan America. As can be seen, overall risk is somewhat higher in the West, and somewhat lower in the Midwest. At least part of this is likely due to the higher levels of Hispanic and foreign-born persons in the Western states (27.5% and 19.9%, respectively, compared to 15.1% and 12.6% nationally.) For 3 of the 4 specific risk domains (Individual, Familial and Household, and Physical Environment), the West has the highest levels of any of the four regions.

Looking at metropolitan areas, risk appears to be highest inside the core of metropolitan areas, and much lower in the surrounding areas. Just 21.4% of children living in the core metropolitan area are free of any of the 22 risk factors, while 38.2% of those in the remainder of the metropolitan areas do not have a single

⁵ The ACS utilizes the same race and Hispanic origin classifications as were implemented in to 2000 decennial census. In this method, respondents may mark as many race categories as they feel are appropriate to describe themselves. The 6 basic categories are: White, Black, American Indian/Alaskan Native, Asian/Pacific Islander and an “Other” write-in.

risk factor. Children in places completely outside of metropolitan areas have levels somewhere in between, at 29.9%. This pattern appears somewhat similar for each of the risk factor domains, as well.

State Distribution of Risk

Table 8 extends these data to the individual states and District of Columbia. Readers are reminded that all of the values being discussed in this paper are sample-based estimates, and some may not be statistically different from one another. Readers are encouraged to use the supplied variance estimates provided with this paper to better understand the sampling variability associated with these estimates, and to determine the statistical significance of any paired comparisons they may wish to make.

A variety of findings emerge from the estimates in this table; among them:

* High overall mean levels of risk are seen in DC (3.2) relative to the U.S. average of 2.2. The New Hampshire value of 1.3 is significantly lower than the U.S. average.

* A high percentage of children in Minnesota (47.2%) are free of risk, compared to the national percentage of 31.5%. Children in the District of Columbia were significantly lower than the national percentage, with just 17.3% being risk-free.

* Only 3% of all children in the U.S. experienced 8 or more risk factors, but 6.4% of the children in the District were at this level. Compared to the national level, Montana was significantly lower with only 0.6% of the children having 8 or more factors.

* In the U.S., 17% of children had at least one Individual Domain risk factor; this compares with 21.3% of the children in Arizona, and just 12.8% of the children in Connecticut.

* Among Familial and Household risk factors, 52% of US children had at least one; this compares with 73% of the children in the District experiencing at least one, and 32.2% of the children in North Dakota experiencing at least one.

* While 27.1% of all children in the U.S. have at least one Economic risk factor, 39.2% of the children in Mississippi, and 15.1% of the children in New Hampshire, do so.

* In Hawaii, 64.6% of all children face at least one Physical Environment risk factor, compared to 44.1% of all U.S. children overall. Children in Minnesota are significantly less likely than the national average to have at least one Physical Environment risk factor at 26.5%.

These data demonstrate that risk is not a uniform or systematic condition among all children in all states. There is sizable variability across and among the states.

Metropolitan Distribution of Risk

One of the most often-used pieces of geographic identification is that of the metropolitan statistical area. The general concept of a metropolitan statistical area is that of an area containing a large population nucleus and adjacent communities that have a high degree of integration with that nucleus. Starting with the application of the 2000 Office of Management and Budget (OMB) standard to Census Bureau data, micropolitan statistical areas also have been defined. A metro area contains a core urban area of 50,000 or more population, and a micro area contains an urban core of at least 10,000 (but less than 50,000) population. Each metro or micro area consists of one or more counties and includes the counties containing the core urban area, as well as any adjacent counties that have a high degree of social and economic integration (as measured by commuting to work) with the urban core. The purpose of these statistical areas is unchanged from when metropolitan areas were first delineated in 1949: the classification provides a

nationally consistent set of delineations for collecting, tabulating, and publishing Federal statistics for geographic areas.⁶

The 2007 American Community Survey (ACS) data generally reflect the December 2006 Office of Management and Budget (OMB) definitions of metropolitan and micropolitan statistical areas; in certain instances the names, codes, and boundaries of the principal cities shown in ACS tables may differ from the OMB definitions due to differences in the effective dates of the geographic entities. This research uses the 363 metro areas defined under the December 2006 OMB definitions, which account for over 62 million children, or about 84% of all US children.

Table 9 provides data on the levels of risk for children in each of the Metropolitan areas of the United States. As with the data for the states themselves, readers are reminded that many of these areas are somewhat small (although none by definition contain less than 65,000 persons). Again, readers are urged to examine the accompanying estimates of variability to understand when apparent differences between areas are or are not statistically, as opposed to substantively, different.

Some of the key findings of Table 9 are:

* High overall mean levels of risk are seen in the Laredo, TX MSA (4.7) relative to the U.S. average of 2.2. The Barnstable, MA MSA value of .9 is significantly lower than the U.S. average.

* Overall, 31.5% of all US children experience no risk factors, while 55.3% of the children in the Dubuque, IA MSA were free of risk. However, just 5.1% of the children in the Laredo, TX MSA were risk-free, significantly lower than the national average.

* Only 3% of all children in the U.S. experienced 8 or more risk factors, but 22.6% of the children in the Laredo, TX MSA were at this level. Eleven different MSA's reported no children having 8 or more factors.

* In the U.S., 17% of children had at least one Individual Domain risk factor; this compares with 41.7% of the children in the Laredo, TX MSA, and just 9.6% of the children in the Jackson, MS MSA.

* Among Familial and Household risk factors, 52% of US children had at least one; while 88.1% of the children in the Laredo, TX MSA experienced at least one, and 22.7% of the children in the Logan, UT/ID MSA.

* While 27.1% of all children in the U.S. had at least one economic risk factor, 59.7 % of the children in the McAllen-Edinburg-Mission, TX MSA, and 12% of the children in the Appleton, WI MSA, did so.

* In the Hinesville-Fort Stewart GA MSA, 72.4% of all children face at least one Physical Environment risk factor, compared to 44.1% of all U.S. children overall. Only 17.9% of children in the Barnstable, MA MSA, significantly lower than the U.S. average.

Even more so than with the state-level data, the results for metropolitan areas show that the levels of risk can and do vary greatly throughout the nation. A metro area such as Laredo, Texas, for example, shows a strong pattern of having much higher levels of risk for children.

Discussion/Further Issues

One of the most frequent and serious questions which decision makers face each day is the degree to which some phenomenon or problem varies among the population. Routinely, data is sought to answer the question as to whether or not a characteristic is or is not varying to some great degree across people and

⁶ See: <http://www.census.gov/population/www/metroareas/metroarea.html>

places. Often, however, data with this variety does not exist, or, if it does, it may have serious analytic limitations because it is the result of some administrative or complete count, thus limiting the amount of characteristic details that are available in the data.

The Census Bureau's implementation of the program of the American Community Survey addresses this issue in a direct and expansive way. By replacing the once-a-decade long-form data collection associated with decennial census activity to a continuous data collection operation, the ACS can provide richly detailed characteristic data for the entire nation and its geographic components on an ongoing basis.

In this analysis, data from the single-year data collection has been used to show how various measures can be brought together to evaluate levels of child risk, or well-being, across the nation. The data allow us to make these estimates not just for the country as a whole, but for states and even metropolitan areas. In doing this, we begin to see the wide range of variability that exists, and patterns of extreme high and low values in the data become evident. From the perspective of policy and decision-makers, it becomes more certain where the areas of need are greater or less. Of course, as with any sample-based data system, one must be mindful of the sampling variability that exists within these estimates.

As the ACS continues to grow and provide data through 3- and 5-year period estimates, even smaller geographic units will have data available to them. Moreover, with the yearly updated production of these data, sequential yearly rolling averages, dampening the effects of sample variation, will provide clean and consistent data series of estimates that clearly define emerging trends over time.